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# Soybean Digest



*Official Publication*

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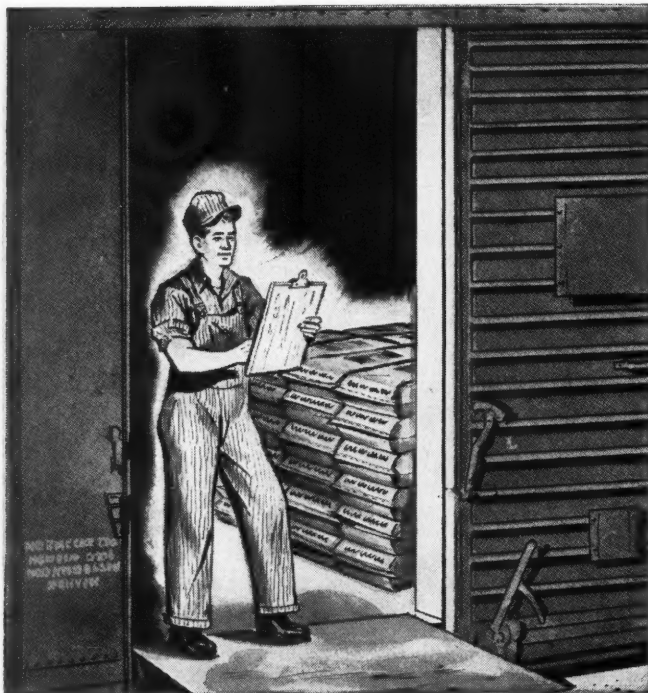
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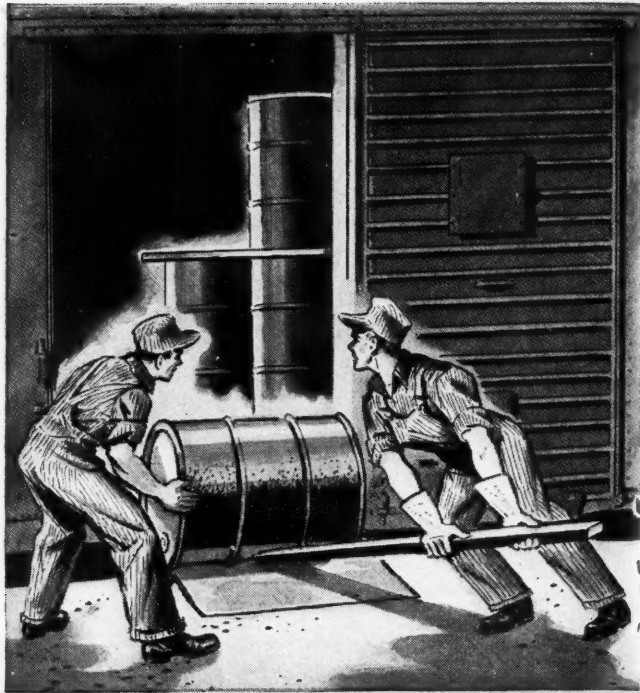
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MARCH • 1945 MAR 23 1945



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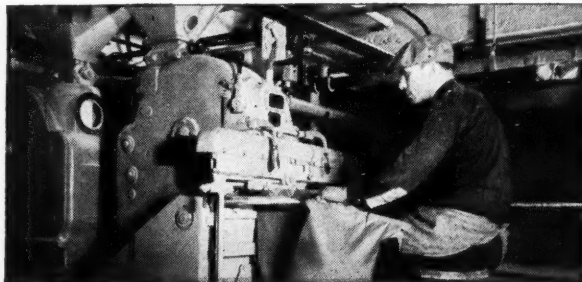
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# THE Soybean Digest

REG. U. S. PAT. OFF.

GEO. M. STRAYER, Editor

KENT PELLETT, Managing Editor

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Vol. 5

MARCH ☆ 1945

No. 5

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### The American Soybean Association

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MARCH, 1945

## To Hold up Soil Fertility

The *Soybean Digest* is again making available to growers through vocational agriculture teachers, county agents and AAA chairmen, information on the proper inoculation of soybean seed, just as it has the past two springs.

Such a simple step as inoculation of seed planted this spring may not in every case make a big difference in return to the individual grower, yet it may add millions of bushels to the nation's soybean crop. Even one or two more bushels per acre will add 10 to 20 million bushels to the nation's food stockpile. This is conservative. Experiment station results indicate a much higher return on the average from inoculation.

But there is another angle that may be even more important in the long run. That is the effect of inoculation in maintaining soil nitrogen. The heavy cropping of war years is taking a heavy toll of soil fertility. This was pointed out by Howard L. Roach, president of the American Soybean Association, in a recent statement to the press. To quote Mr. Roach:

Some concern is being evidenced by the farmers of the Midwest about the fertility that is being exhausted from our soil, due to the intensive cultivation and high yields of the past three years. The lack of adequate amounts of legume seeds further aggravates this condition.

The War Food Administration has asked the farmers of the nation to grow as many soybeans in 1945 as were grown in 1944, and the inoculation by the proper legume bacteria of these acres will go far to supply our soils with the nitrogen that will be depleted by the present crop.

Without proper soil fertility, we can expect our yields to diminish. Experiments have proven that the proper inoculation of soybeans when planted will increase the yields of mature beans by 10 to 15 percent.

And don't wait until the last minute to order your inoculants if you want to be sure that your needs will be met.

## Misunderstanding on Purchase Program

Misunderstanding seems to have arisen in the industry over the purchases of soybeans for lend-lease purposes. The support price guaranteed to farmers was meant as a minimum price for beans — not a ceiling. Commodity Credit Corporation has been buying for lend-lease at the support price plus the allowable handling and freight charges, plus the carrying charge allowed in the CCC processing program.

Contrary to the opinions of some persons in the industry, this program is *not* in violation of ceiling regulations. In fact, it is purchasing at the minimum price allowable, and purchase at any figure lower than that offered by CCC would be violation of the support price program. There is nothing to prevent processing plants from paying the same figure. In fact, purchase at any lower figure is a violation of support prices by the processor. Some processors, in order to secure the soybeans

which they wanted, have paid higher prices. They are perfectly within their rights by doing so.

Incidentally, as related elsewhere in this issue, CCC is in need of additional rather large quantities of soybean oil to fill tentative lend-lease commitments.

### Breach in the Margarine Wall

A significant breach in the wall of legal restrictions surrounding margarine was achieved February 21. On that date a bill giving special recognition to soybean oil which had passed both houses of the Kansas legislature was signed by the governor.

House Bill 48 exempts margarine made from soybean oil from a 10-cent tax imposed on the colored product in Kansas.

The legal effect of many restrictions on margarine is to place domestic soybean oil in the same class with coconut and other foreign oils. The Kansas law gives soybean oil equal recognition with lard and other domestically produced fats. A similar measure is pending in Colorado and it is to be hoped that it will be similarly successful.

Kansas is to be commended in stepping out ahead of the big soybean producing states in giving this important crop the legal status it deserves.

### Push Disease Appropriation

Representatives of the National Soybean Processors Association and the American Soybean Association have appeared before the Bureau of the Budget in support of the resolution adopted at the annual convention

wherein increased funds were asked for soybean disease studies. They were given what was apparently a favorable hearing.

The agricultural committee of the House of Representatives has now heard testimony from Department of Agriculture officials in support of the increased appropriation, which is included in the General Agricultural Appropriations Bill. From the Midwest, things appear to be progressing favorably on this increased appropriation which is direly needed to conduct modest research on soybean diseases *before* the crop is hit by a scourge for which there are no known controls.

We suggest you contact your representative in congress. Ask him to check on the progress of this increased appropriation, pointing out what it means to your state and his folks back home.

### Just in Passing

Some rather surprising yields came out of the first Nebraska yield contest, reported in this issue — top almost 50 bushels . . . Very favorable reports concerning Lincoln have been coming from the contests. Growers are well pleased. The variety is usually out in front in yield and general performance . . . Russell S. Davis reports a soybean plant with a thousand pods. Is *this* a record? When the managing editor grew his first soys in the garden he was astonished to find 150 pods on a plant! . . . It is not every day that a 14-year-old writes an authoritative article on soybeans, yet Phyllis Aamodt has done it. See "Soybeans . . . and People" page.

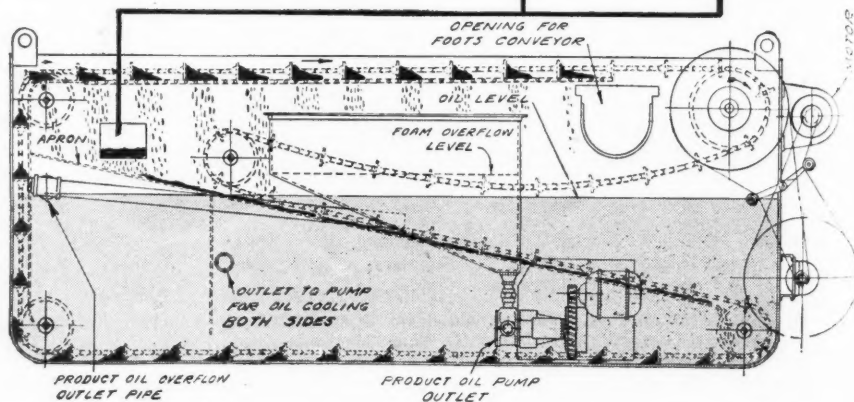
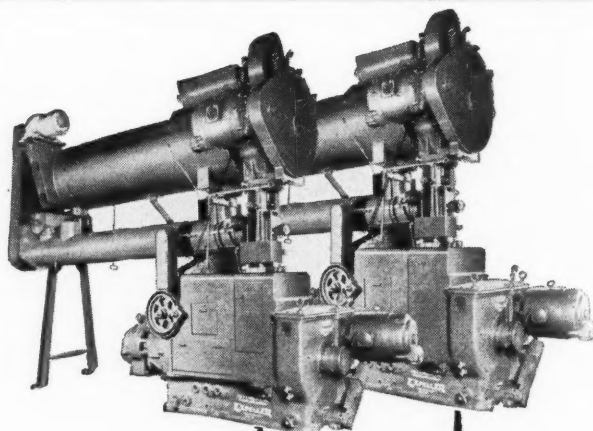
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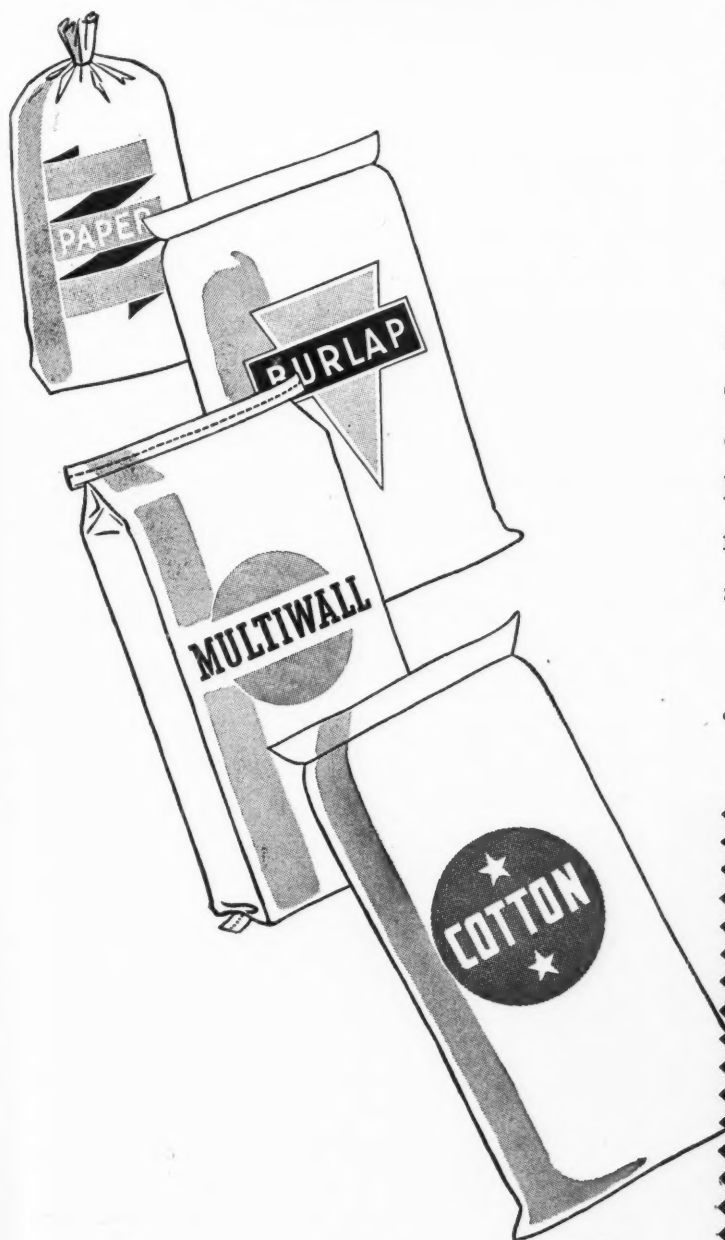


SOYBEAN DIGEST



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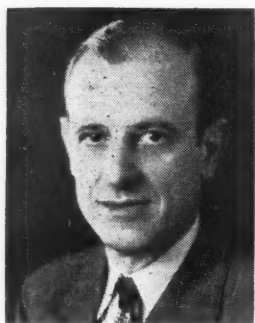
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D. J. BUNNELL

# BIRTH AND DEVELOPMENT *of a New Industry*

By D. J. BUNNELL

**T**WENTY-FIVE years ago, here in the United States, the word "soybean" was known to only a small group of agricultural scientists and a limited number of early pioneer growers. The rapid increase in production, and the vast expansion of processing plant facilities which transformed an infant into a 500 million dollar industrial giant within the space of a few short years, have captured the imagination of the American public.

Today — whether it be in the desert of Arizona or the pine woods of Maine — at the mere mention of the word "soybean," a responsive chord is struck. One even hears that automobiles and buildings of the future will be made from soybeans. Also, that many fantastic developments in the edible and industrial fields are about to take place, with soybeans as the background. Do not smile when I suggest that some laymen may even have had the idea that he who is in the soybean business must and cannot help but drip gold.

What magic is there about soybeans that can possibly give reason for such exaggerations? I intend to present to you the facts simply and with stark realism.

## THINGS WHICH SUSTAIN LIFE

Mankind has always had an appreciation of the things which sustain life, aid health and add to the comfort of living. Three different materials are necessary for the maintenance of animal life. Other materials are essential, but the "big three" stand out in importance. We find these in the three materials: carbohydrates, fats and proteins. Certainly, they must be supplemented by small amounts of other substances, but the bulk of our food, and that of the animal kingdom, is made up of these three. A clear understanding of the basic importance of these simple fundamentals lays the foundation for comprehension of the intrinsic value of the soybean and the possibilities of its application to the uses of man. For the soybean is rich in two of these essential nutrients. It contains an abundant supply of body-building protein and energy producing fat. In addition, it has four times as much potassium and sodium; five times as much calcium; three times as much magnesium, and twice as much phosphorus as wheat. Iron in soybeans is more available to the digestive system than that found in cereal grains; and — surprising though it

may sound — is more available than the iron in pork liver. The carbohydrate fraction is not large, amounting to about 10 percent and is distinguished from other carbohydrates in that it contains very little starch. This stands out in sharp contrast to the cereal grain carbohydrate, and is a characteristic of special interest to diabetics. This little child of nature has been endowed with most of the essentials of life.

## DIVERSIFICATION OF CROPS

These facts make it easy to understand why our agricultural scientists went to China, years ago, to study the soybean in their search for a new crop to meet a basic farm need, and at the same time create wealth from the soil. They realized that an agricultural nation, such as ours, had to provide the American farmer a means to diversify his crops so that earning power could better be maintained. Varieties had to be selected which could be adapted to this country. Farmers had to be interested in the new crop; cultural practices had to be learned and so another agricultural experiment was on its way. This persistent, timely work of the Department of Agriculture and the state experiment stations, of educating farmers to fit soybeans into their plan of crop rotation, was started long before processing plants began to spring up over the Middlewest. In these early years, the crop was cut for hay; used for forage; plowed under as a green manure; threshed for seed, and fed to livestock. The progress was slow and some time passed before any thought could be given to processing for oil and protein. This could not be done until enough soybeans were harvested to create a surplus over and above seed requirements. Gradually, with each passing season, the farmer developed a better understanding of the place soybeans would occupy in relation to other crops. For him this was a period of exploration and adjustment. The first milestone was passed.

A new industry was about to be born. The next step was to develop plants which could provide a market; process the new crop, and sell the products.

From the beginning there was full and complete comprehension on the part of our agricultural scientists that usage in this country could never follow the pattern used in China where soybeans were moved from the field into the home and there consumed. The fact that a product is nutritious is not enough to gain acceptance. We will not eat it unless we like the taste; and I do not have to tell you that our tastes have been developed to a highly critical degree.

Therefore, the American way had to be through plants which would process soybeans into products that could be applied to specific uses. The first plants came into existence in the early 1920's. In the beginning, the task was a simple one of converting soybeans into only two products: soybean oil and soybean oil meal. The latter carries the protein fraction of the soybean. Then it was necessary to teach the farmer the value of soybean protein. Remember, we had to start by using the protein as animal feed for at that time no other acceptance was available to us. The human consumption angle had to await the time when diversification could find and develop new products.

It was a slow, uphill struggle to introduce this new, valuable protein to farmers for they were experienced in and satisfied with the use of other products such as cottonseed and linseed meal as feed for their livestock. Even the farmer who raised soybeans hesitated to use something new when he, as a feeder, was having his needs filled through other channels. Gradually, after several years, it became recognized that soybean oil meal was a desirable and result producing feed for all classes of livestock. Once convinced of its value, the farmer has used it in ever increasing volume.

• *The story of the American soybean industry is a dynamic one as told by D. J. Bunnell, until recently vice-president of Central Soya, Inc. He sees new horizons opening that justify an optimistic view of the future. An address before the New York Society of Security Analysts.*

In addition to the problem of soybean oil meal distribution was the necessity of finding a market in the industrial and edible fields for soybean oil. Imported soybean oil had been used in varying degrees for industrial purposes long before soybeans were grown in commercial quantities in this country. Therefore, basic acceptance in this field was established and the problem was one of developing specific types of oil for specific purposes.

There was no such experience to give impetus to the use of soybean oil for edible purposes. Its high iodine number, rightly or wrongly, gave soybean oil the reputation of being an oil not too desirable in the edible field. It was considered particularly adaptable to technical uses and to the paint industry because of its drying characteristics. The major objection to the use of soybean oil for edible purposes was its tendency to revert and become rancid. It could not be satisfactorily stabilized for use in food products to insure keeping qualities. Without doubt, hydrogenation, the process of solidification, eliminated the objectionable characteristics of liquid soybean oil. This was rapidly recognized by the edible trade with the result soybean oil was used in increasing proportions in margarine and shortening until a place was gained in the best quality and most highly advertised products on the market.

While these adjustments were taking place, facilities were being expanded and crushing machinery was being improved. The original equipment of the pioneer soybean processor was an expeller, really a screw-press, which squeezes the oil from the already cracked bean and expels the residue protein in the form of a hard, compressed cake. In 24 hours this equipment could convert only 150 to 200 bushels of soybeans into soybean oil and soybean oil meal. It can easily be seen that this

crude type of machinery could not be the medium to handle ever increasing crops of soybeans. The early years developed a persistent search for more efficient equipment, for success could be gained only through larger capacity and higher oil extraction.

#### TURN TO EUROPE

It was logical for the soybean processor to turn his eyes to Europe to study the solvent extraction methods used there in processing various types of vegetable oil seeds. Economics had compelled the European to develop oil extraction to the highest point of efficiency. This efficiency is best illustrated by the fact that the extraction process leaves hardly 1 percent oil in the resulting meal, while expeller soybean meal will average an oil content of about 5 percent. The importance of higher oil extraction is best illustrated by the fact that each pound of oil not allowed to remain in the meal has a value of four to six times greater than when left in the meal.

The first complete solvent extraction units were imported from Germany in the middle 1930's. It took only a few short years for the industry to recognize the innate advantages of the extraction process. Use of this type of equipment today approximates 22 percent of the industry's capacity, and is still being expanded so rapidly that it can now be envisioned as the type of operation that shall dominate the industry in the future. While these changes were in progress, improvement of expeller machinery was not being neglected. Compared to the early, low capacity expellers, today's new models can carry a load up to 1,000 bushels for each 24 hour period.

The development of our own company

is typical of this rapid growth and persistent expansion which has taken place in the industry. In 1934, Central Soya Company started with six expellers which had a capacity of 2,400 bushels per day. In 1937, we imported from Germany an extraction unit having a capacity of 9,000 bushels per day. By this time we had also added four expellers to the original six. Our operation was carried on at one location, namely, Decatur, Ind. Today we have three plants; one in Illinois, the original, one in Indiana and one in Ohio. We are operating 38 expellers; the extraction unit has been improved and its capacity increased until now our company has a total daily crushing capacity of 44,000 bushels per day. This is a growth of 1,800 percent in one decade.

In 1934, soybean production in the United States was 23 million bushels. In 1944, the production was 193 million bushels. This is an increase of about 850 percent. The soybean grower also has progressed a long way since the year 1924 when he produced 5 million bushels. This increase in production may be attributed to the many diversified interests who had faith in the possibilities of the soybean and its adaptability to their specific purposes. They had the courage to venture their capital in plant facilities and research laboratories at a time when the country was in the grasp of a depression.

The reasons for the many interests to enter the field of soybean processing were divergent in accordance with the special activities of these firms. Old, oil seed processors who dominated the technical oil field — such as Archer-Daniels-Midland Co. and Spencer Kellogg & Sons — approached soybeans to round out their complete line of technical oils. Another group which included Central Soya Company, Ralston Purina and Allied Mills had faith in soy protein as an important ingredient to round out their mixed feed manufacturing operations. A third group was made up of edible oil refiners and included A. E. Staley Mfg. Co., Swift & Co., Procter & Gamble, and Durkee Famous Foods, all of whom led the research which opened new uses for soybean oil for edible purposes.

#### DIFFERENT VIEWPOINTS

The last important group to have entered the soybean field have been large flour millers such as General Mills and Pillsbury Flour Mills who were drawn to soybeans now that soy flour is being accepted more generally by the bakery trade. Success in such a short period of time can be attributed to the fact that laboratory research was conducted from so many different viewpoints at the same time.

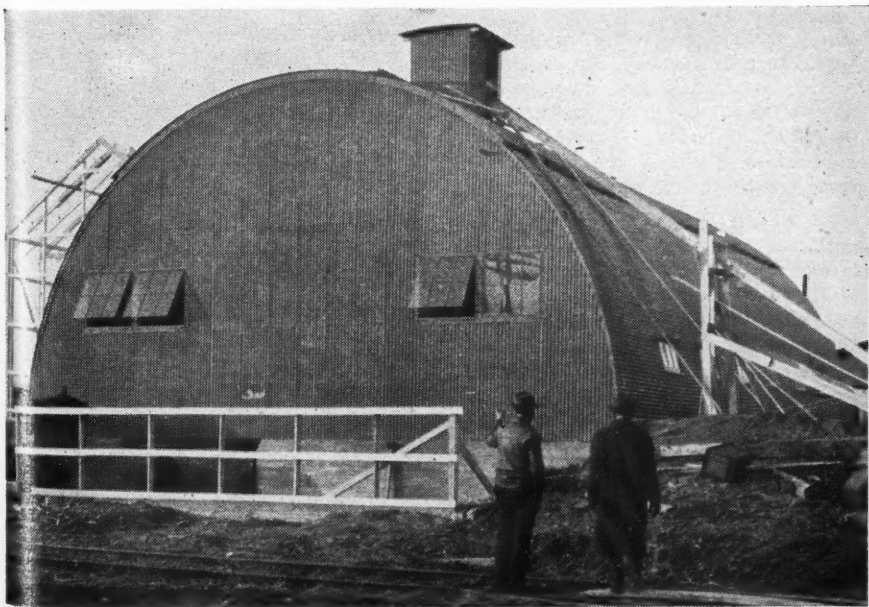
Regardless of the fact that all approached the research problem from different angles, it was soon learned that increased knowledge about soybeans led them into fields far removed from their original business. Here was a raw material — the more they learned about it, the more products they knew could be made from it.

To make this clear to you, I shall again

## Indiana Processing Mill

Soybean extraction plant of Indiana Farm Bureau Cooperative Association at Danville, Ind., constructed during 1944.

—Photo Co-op



refer to Central Soya Company. We are producing lecithin and sell it all over the country. We manufacture many types of soy flour which we distribute to bakers, the candy trade, meat packers and other producers of food products. Our research department includes a thoroughly equipped bakery laboratory which is managed by an expert research baker. In our other laboratories there is constantly carried on an intensive study of soybean oil and soybean protein to determine new and better uses in the edible and technical fields. We have maintained an elaborate biological laboratory, where experts continuously seek improvements and new adaptations of soybean protein for better nutritional balance in the feeding of livestock and poultry, our original endeavors.

Central Soya Company's experience is typical of the diversifications which have developed in the operations of other leaders in the industry. Staley, originally oil refiners and corn processors, advertise soy flour in your New York subway. Archer-Daniels and The Glidden Co. find themselves in the mixed feed business, while Spencer Kellogg, technical oil specialists, now distribute shortening to the bakery trade. These are but a few examples of the different avenues into which soybean processors have been led.

#### FEELING OF PRIDE

The soybean industry, and my company in particular, has a feeling of pride in the results attained. This feeling does not spring from just the achievements as you see them. It comes from the fact that almost impossible problems, with which we lived daily, were solved and are now too easily forgotten, because they have been overcome.

This is not an industry where you strike oil and then pump until the supply is exhausted. The mere fact that soybeans became more accessible through these years, was nothing but an increasing challenge to the most priceless asset of successful soybean operations, managerial know-how. The trying experience of handling bad quality crops; obtaining adequate supplies to keep plants running; adverse price situations where the value of products was out of line with what had to be paid for beans; problems of hedging; difficulties faced in finding profitable markets for ever increasing output from ever increasing crops. This was the school of hardship the industry had to endure.

Today we are operating under war-time conditions. We have filled the gap that developed when imports of foreign oils were denied us. We have produced the protein necessary to feed an unprecedented war-time population of livestock and poultry. We have produced hundreds of millions of pounds of soy flour for domestic consumption and Lend-Lease.

War-time economics have fixed prices of soybeans and the major products: oil and meal. Processors, in their operations, are under contract with the government, for it is the only way to safeguard continuous

production, regardless of rapidly changing economic influences always present during a war period. It is not my purpose to go into a description of this complex relationship, for it is temporary. We look forward to a future which will return free enterprise to growers, to ourselves, and to our customers — for we are believers in the principles that established this industry in the beginning; in the time-tried principles of individual initiative and fair competition.

Today we are an established industry. We have arrived at a period of transition, a natural growth development after intensive short pioneering years. Are we going to maintain the present status of rapid

advancement and development or are we going to relax in order that we may view, with satisfaction, past accomplishments?

The record, I believe, entitles us to take a dynamic viewpoint toward the future. Research, now being conducted, is rapidly opening new horizons. We have arrived at the stage of specialization; the adaptation of new products to new uses. I shall not try to predict the problems which are to be faced. There are many. It can be stated without hesitation and without reservation that this newly established industry will face the future with confidence and serve the nation in the problems of peace with the same initiative and vigor it has shown in the problems of war.

## 1,600 Attended the Van Wert Meetings

About 350 people attended the sixth annual Soybean Round-up held at Van Wert, Ohio, February 7 in connection with the annual county farmers' week to hear talks by noted experts on the future of soybeans as a crop in northwest Ohio.

Total attendance reached 1,600 for all sessions during the week.

A feature of the soybean meeting was the presentation of trophies to Raymond Prior of Liberty Township and Lewis Yoh of Hoaglin Township for the best yields of soybeans and corn on a 10-acre field in a contest sponsored by the Van Wert County Seed Improvement Association.

The awards were presented by L. G. Purmort, president of the Van Wert Chamber of Commerce. Similar contests for 1945 were announced by R. S. Oetzel, agricultural agent.

#### PRaises COUNTY'S RECORD

Ersel Walley, of Walley Agricultural Service, Fort Wayne, Ind., and director of the American Soybean Association, praised Van Wert County for its production of over 1,100,000 bushels of soybeans last year, making it one of the highest producing counties in the area.

"While soybeans are a war hero the crop must stand on its own merits in the postwar period," Walley said, and predicted that the acreage in Northwest Ohio would remain at least at 80 percent of its present figure. Explaining that the 200 million bushel national yield in 1944 represented a ratio of only one bushel of soybeans to four of wheat and to 15 of corn, the recent increase in acreage was normal and due to increased knowledge of the value of the crop in foods and in industry.

Walley, however, stated it as his opinion that though the postwar acreage might be slightly under that of the pres-

ent, through increased yields from better cultural methods and varieties the total production of soybeans in northwestern Ohio would not decrease. "To my mind this is a conservative view when one considers all the probabilities both favorable and unfavorable," said Walley.

Ward Calland, Decatur, Ind., research director of the Central Soya Company, spoke of the long history of soybeans as a food and said that today 95 percent of the oil is used for foodstuffs and only 5 percent for industrial uses.

"You have seen under your own eyes the development of a new American industry," Calland said. The value of the new Lincoln bean and improved cultural practices were discussed by the speaker.

Dale Wortman, chairman of the Soybean Committee, presided and led the open forum on soybean problems.

Summary of Van Wert County Soybean Variety Tests 1938-1944 Conducted in Cooperation with Ohio Agricultural Experiment Station and Van Wert Agricultural Extension Service at Marsh Foundation Farms, Van Wert, Ohio

Variety	Av. Yield per acre, 6 yrs.—Bu.	Yield per acre, 1944—Bu.	Planting to maturity, 6 yrs. av.—Days	Height, 4 yrs. av.—Inches	Lodging, 4 yrs. av.—Degrees
Lincoln†	42.9	30.2	128*	37†	2.3†
Illini	33.2	23.5	133	42	3.5
Mingo	33.1	23.6	129	37	2.9
Wisconsin 606	32.0	24.9	116	31	3.0
Dunfield	31.9	21.8	132	41	2.5
Richland	31.5	26.6	122	33	2.4
Scioto	31.1	22.6	140	42	3.6
Mandarin	27.2	24.1	115	30	1.8
Habaro*	24.0	24.0	116*	23*	2.3*
Earlyana*	23.1	23.1	119*	32*	2.3*

\*One Year (1944), yields, maturities of these varieties should not be compared to others, except in 1944 yield column.

†Three years (1941-1942-1944).

# 49.2 Bushels PER ACRE IN NEBRASKA!

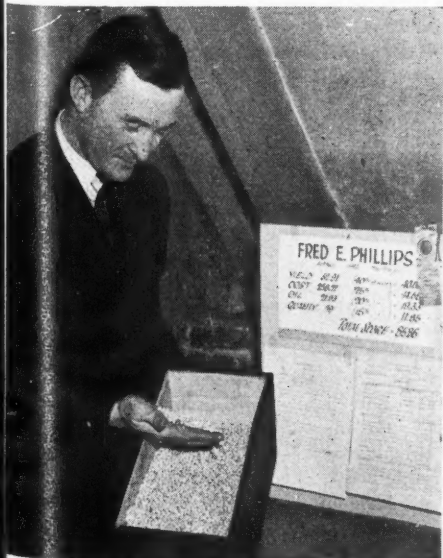
• Report of first state soybean yield contest in Nebraska shows some high yields. Crop adapted in east and irrigated sections of state.

Top honers in Nebraska's first 5-acre soybean yield contest were awarded to Ralph George for his official yield of 49.2 bushels of Mukden soybeans per acre on his farm near South Sioux City in 1944. Second place went to Albert Bierman of Dakota City who produced 42.5 bushels per acre. George Bean, also of Dakota City, placed third with a yield of 41.9 bushels, while J. H. Kitzelman of Sterling in Johnsons County ranked 4th with his 41.2 bushel yield.

These farmers and six others were publicly honored at the annual banquet of the Nebraska Crop Improvement Association held at Lincoln February 1 in connection with the Nebraska organized agriculture meetings. Prizes ranging from a \$25 war bond and five bushels of certified Lincoln Soybeans for first place to \$5 and one bushel of Lincoln soybean seed for 10th prize were awarded by Walter White, agricultural commissioner of the Omaha Chamber of Commerce. Engraved medals were also presented as county awards to the two contestants having the highest yields in each county represented in the contest.

As the state contest winner, Mr. George was also awarded a certificate of merit and \$10 in cash from the Pillsbury Mills in Minneapolis. In discussing the high yield-

**Fred E. Phillips of Arthur, Ill., hung up the all time record in yield contests in 1942 with a 10-acre field of Chiefs averaging 52.9 bushels. Fred's son is shown in the picture.**



ing field contest officials revealed that the actual yield was well over 50 bushels per acre but extremely unfavorable harvesting conditions made it impossible to save all of the crop. Mr. George estimates that as much as 10 bushels per acre may have been lost in harvesting.

George's yield of almost 50 bushels per acre was the highest so far turned in for any state yield contest this year. It was topped by Fred E. Phillips of Arthur, Ill., with an average of 52.9 bushels in 1942 and Paul Wessbecker of Mt. Pulaski, Ill., with 50.7 bushels in 1941.

Mr. George is owner and operator of the Half-Way farm one mile south of South Sioux City. He raised 110 acres of Mukden beans last year, yielding over 40 bushels per acre. The five acres entered in the contest averaged 50.6 bushels per acre as they came from the field and 49.2 bushels when adjusted to the uniform 14 percent moisture level. The beans were raised on level, Sarpy sandy loam soil which had been treated with a complete commercial fertilizer in 1943 at the rate of 200 pounds per acre.

The ground where the beans were produced has not been plowed for several years. Ordinarily it is disked but last April it was chiseled 18 inches deep to loosen the subsoil. This was followed by disking to kill the weeds.

Mr. George planted his beans with a deep furrow grain drill with part of the spouts closed. Six rows are planted at a time with alternating 24- and 16-inch spaces between the rows. This spacing gives room for the tractor wheels and makes it possible to use a beet cultivator for later tillage operations. Ninety pounds of seed per acre were used.

## PLANTS EARLY

Mr. George tries to get his beans planted about May 4th or 5th as he believes that soybeans should be planted earlier than corn and feels that many failures are due to late planting. He has relatively little trouble with weeds and in 1944 he cultivated the crop only three times. Though irrigation facilities are available, the 1944 crop was not irrigated. Mr. George feels that his greatest soybean production problem is harvesting. He combines his beans and estimates that 10 bushels of beans per acre were lost in harvesting last fall.

Next year he will follow about the same practices except that he will reduce his



**Ralph George of South Sioux City, Nebr., has turned in the highest per acre yield, 49.2 bushels, with a field of Mukdens, of any 1944 yield contest winner. In 1945 he plans to grow Lincolns.**

rate of seeding and use the Lincoln variety insofar as seed is available.

Other state contest winners and their official yields were:

Placing	Name, Address	Yld. per A.
5th	W. L. Uhler & Son, Hooper	36.5
6th	Andrew Peatrowsky, West Point	35.9
7th	R. J. Lippincott, Blair	34.3
8th	Allan Mulliken, Nickerson	34.1
9th	Albert Hue, Herman	33.9
10th	Vern Morgan, Dakota City	33.8

The Nebraska Soybean Contest was sponsored by the Nebraska Grain Improvement Association, the Omaha Chamber of Commerce and the Nebraska Agricultural extension service, assisted by the Allied Mills of Omaha, the Dannen Mills of St. Joseph and the Gooch Milling and Elevator Co. of Lincoln. J. C. Swinbank, secretary of the Nebraska Grain Improvement Association, summarized the records and reports that 83 farmers from 22 different counties were enrolled in the contest.

Ninety percent of the contestants submitted complete reports which showed among other things that the average contest field was 11 acres in size and produced a yield of 25½ bushels per acre. The average yield of the 10 prize winning fields was 38.3 bushels per acre.

"A review of the contest records proves again that soybeans can be successfully produced in Nebraska," Swinbank said, "but they also emphasize the necessity of careful cultural practices. High yields will not always result from a given set of cultural practices because yields of soybeans like other crops, are influenced by soil fertility and weather conditions. However, the examples of good practices developed by the experienced growers in this contest will surely help those who have limited or unfavorable experience with this



Douglas County Agent W. R. Wicks stands in contest field of Otto Haries, Millard.

crop." Swinbank stated that one of the points of special interest was the number of instances where growers in northeast Nebraska reported a marked increase in the crop of corn which followed soybeans.

#### VARIETIES USED

Richland, Dunfield, Illini, Manchu and Mukden, in the order named were the most popular varieties used by the contestants. A study of the data failed to reveal any correlation between variety and yield. Factors other than variety seemed to predominate though one contestant using the new Lincoln variety had a yield in excess of the average yield of any of the other varieties named.

#### SEEDBED PREPARATION

Fall or early spring plowing followed by a number of tillage operations prior to planting to destroy successive crops of weeds was a generally accepted method of seedbed preparation. Disking instead of plowing was not uncommon where corn stalk ground was being prepared. A few farmers used duckfoot subsurface tillage implements, one used a one way disc plow, one listed his ground on the contour while the winning contestant "chiseled" his field to a depth of 18 inches for the initial operations. All were agreed that weeds should be pretty largely destroyed before the beans are planted.

All but four contestants planted their beans in rows which ranged from 14 to 42 inches apart. Though 40 and 42 inch spacings were most common, the yields averaged more for those who planted in the narrowly spaced rows. The table which follows shows the average yields obtained from the different row spacings.

Spacing	No. of Growers Reporting Average	Yield
42-inch rows	12	21.4 bu. per acre
40-inch rows	32	23.3 bu. per acre
38-inch rows	3	29.1 bu. per acre
36-inch rows	9	27.5 bu. per acre
Less than 36" row	6	29.3 bu. per acre
Irregularly spaced rows	6	31.2 bu. per acre
Solid planting	4	24.3 bu. per acre

The most common rate of planting was 55 to 60 pounds of seed per acre. It is of

interest to note that 14 of the contestants planted at a rate exceeding 75 pounds of seed per acre and produced approximately 2 bushels per acre more than those planting at the 60-pound rate. Whether this extra yield would have been secured in a year when moisture conditions were less favorable is a matter for consideration.

The dates of planting varied from May 10 to July 4. Those who planted before June 1 averaged about 2 bushels more per acre than those who planted after that date. The earliest planting was made by the contest winner.

#### METHOD OF PLANTING

Several methods of planting were reported. About  $\frac{1}{3}$  of the contestants used a corn planter with furrow openers,  $\frac{1}{3}$  shallow listed, quite a number surface planted and the remainder used a grain drill. No significant difference in yield seemed to result from the different methods of planting.

Nearly all of the contestants inoculated the seed before it was planted.

#### CULTIVATION AFTER PLANTING

Only a few contestants reported any difficulty in weed control. Many of the weeds were killed by early tillage operations before the beans were planted. After planting it was a common practice to harrow the field from one to three times as needed and finish up with a tractor or horse drawn cultivator. The number of field operations after planting varied from one to six. There appeared to be little relation between the number of tillage operations and the yield secured.

Soybeans are adapted only to the eastern part of Nebraska and to irrigated sections elsewhere. Drought and rabbits are the main hazards in the central and western part. Since this crop leaves the soil loose and subject to erosion, it should not be grown on land with more than a 2 percent slope except that fertile silty slopes up to 5 percent are suitable if special erosion control methods are used. Although a legume, soybeans should be grown only on fertile soils such as good corn land.

## ILLINOIS STILL LEADS

Illinois yield contestants continue to lead other state contestants in average yield. Average yield of all Illinois contestants this year was 38.18 bushels per acre.

This compares with 35 bushels for Indiana, Iowa 30.92, and Nebraska 25.5.

Average yield of both Iowa and Illinois contestants in 1944 was above that of 1943 but below the 1942 yield.

For Illinois the average of the yields for the three years was: 1944, 38.18 bushels; 1943, 34.45; 1942, 39.7. For Iowa: 1944, 30.92; 1943, 28.7, and 1942, 32.6.

Average yield of the contestants in Indiana has remained the same for the three years, approximately 35 bushels.

## WINNERS OF IOWA CONTEST

A field of Lincolns brought the state championship to Doyle Palmer of Wellman in Iowa's fourth annual soybean yield contest.

Contest winners were announced at the Iowa State College Farm and Home Week at Ames by Joe L. Robinson, secretary of Iowa Corn and Small Grain Growers Association.

Palmer's five acres averaged 37.59 bushels to top the list of entrants. To him also went the John Sand trophy, awarded for the third time this year.

Emery Eigsti, Wayland, pressed Palmer very closely for first place with five acres of Manchus averaging 37.42 bushels. H. A. Puetz, Early, was third with Richlands averaging 36.21 bushels; Clarence Allen of Keota fourth with Mukdens averaging 35.19.

Others who placed in the first 10 were: E. H. Gard, Early, Richland, 33.94; R. W. Dunham, Dunlap, Mukden and Richland, 33.86; Walter Reed, Wellman, Lincoln, 33.68; Henry Hoft, Wall Lake, Richland, 33.52; R. I. Wilson, Sac City, Richland, 33.48; and J. Leo Ahart, Dow City, Lincoln, 32.85.

Beans of six of the first 10 place winners graded No. 1, the rest No. 2.

Previous first place winners in Iowa contests and their yields were: Frank Alliger, Paton, 33.83 bushels in 1941; R. G. Stoakes, Traer, 37.77 bushels in 1942; and Bert Kinsinger of Grundy Center, 38.72 bushels in 1943.

— s b d —

In western and southern Europe Germany has discouraged the raising of livestock, especially hogs, in favor of expanding potato and oilseed production, reports the Bureau of Statistics of the Dominion of Canada. The resulting widespread stimulus to the home production of vegetable oils is expected to exert a long-range influence on U. S. and Canadian exports of butter and lard to those areas after the war.



S. D. HOLLETT

# Processor's Idea of a Good Variety

By S. D. HOLLETT

• *What are the characteristics that processors are searching for in soybean varieties? The author is manager of Swift & Co.'s Fostoria, Ohio, soybean mill. From a talk at Ohio's 33rd Annual Farm and Home Week.*

THE PROCESSOR'S idea of a good soybean variety can be answered in three words, "early and oily," or if we were in Brooklyn we could say, "oily and oily." But seriously, the variety of soybeans to recommend to you growers is so important that it demands further discussion.

Perhaps no product of agriculture has received such widespread publicity as the soybean. So much has been said that it is difficult to find new adjectives to describe the comparatively new crop. It has been enthusiastically referred to as the "magic bean," "little honorable plant," "miracle crop" and many others. Just recently soybeans reached a new peak in popular discussion when the famous radio comedienne, Gracie Allen, featured them in her column appearing in many of the metropolitan newspapers. Gracie had heard of California dogs eating up soybean license plates. Gracie says the more she hears of the soybean the more it frightens her and thinks it may become a vegetable Frankenstein. Gracie is even afraid that with science knowing how to make mechanical men that some day the girls will have a soybean husband. But she adds that she is looking forward to the time when some scientist finds out how to make a scientist out of soybeans and thinks it will serve him right.

## SUDDEN REVERSAL

It is not surprising that the public is sold on the idea that most anything from corn plasters to automobile bodies can be made from the bean or one or other of its by-products. But like so many other activities in American industries a sudden halt and reversal of plan has been noted—for then came the war.

On January 1942, only a few weeks after Pearl Harbor, Ohio soybean growers were electrified by an announcement from Washington that the Government had fixed the price of soybeans at \$1.60 per bushel and had set a production goal requiring approximately 9 million acres. This was almost double any previous year's plant-

ing. Then in 1943 the price was \$1.80 per bushel and you were asked to plant 10 million acres. All this was culminated by the planting in 1944 of approximately 15 million acres to soybeans from which you have harvested beans worth \$2.04 per bushel, with premiums for low moisture content.

## THE NEW EULOGIES

We no longer hear so much of the "little honorable plant" or the "magic bean," now, when we want to eulogize the soybean we hear such phrases as "oilseed crop" and "storehouses of protein and factories of oil." Now it is fat and protein that goes to make up the standard of quality of the soybean crop.

With our entrance into the war both our fats and protein situations were transformed from a condition of plenty to one of scarcity. When the Japs captured the Philippines they deprived us of about a billion pounds of fat a year.

In September of the year 1942 every processor in the country received a letter signed by J. B. Hutson, president of the Commodity Credit Corporation, which read in part as follows: "The President and Secretary of Agriculture in order to promote the production of soybean oil for war purposes and the orderly movement of soybeans at the support price have authorized the Commodity Credit Corporation to develop a program designed to accomplish these objectives. In furtherance of this program, Commodity Credit Corporation hereby offers this contract to processors of soybeans that will establish certain minimum prices for soybeans and soybean products."

So the soybean went to war with the planting of the 1942 crop.

Soybean oil does not directly substitute for all the oils that have been cut off by the war. Certain of these such as coconut or palm oil have some unique properties not found in domestic oils. Due to the emergency there is a shifting of all oils and fats so that any good oil finds a place in the national economy and helps

to substitute and replace the supplies which are curtailed. But if soybean oil alone had to replace the fats and oils that have been cut off by the war, it would require about 166 million bushels of beans a year to do the job.

If judged on the basis of grain standards the quality of the 1943 and 1944 crop is one of the best ever harvested, but when processors got into the 1943 crop they soon found out the oil yield was below normal. Many processors found the oil content of the 1943 beans barely averaged 17 percent on a 14 percent moisture basis as against other years when the average was 18 to 18½ in the soybean belt. What had been in the minds of thoughtful Ohio processors for a number of years was then confirmed, that the value of soybeans to the processor could not be determined according to grain standards, but upon analysis for oil content. It is too early to state the oil yield of the 1944 crop, but with four months operation behind us, it is gratifying to note the oil yield shows improvement over the 1943 crop.

## WHAT HAS BEEN DONE?

Now what has come of all this? What has been done to bring about the production in Ohio of beans that yield more oil? I am happy to say that much, very much has been done. For several years, past, at least one special meeting each year has been held with the processors, and personnel of the agronomy and other interested departments of the College of Agriculture.

With the bulk of the Ohio soybean crop produced in the northern part of the state, where unfortunately we are subject to comparatively early fall rains, there was a tendency on the part of the growers to pay little attention to the maturity requirements of the bean that is planted. Too often there were thousands of acres of soybeans left in the fields because fall rains set in before the beans had entirely matured. At one of the meetings just referred to, attended by Ohio State University representatives, state A.A.A. representatives, farmers, railroad representatives, elevator operators and the soybean processors, a campaign was discussed and summarized, that resulted before the meeting had adjourned in a specific plan being formulated so that by seeding time every farmer in Ohio had heard of the campaign for planting early maturing soybeans. The results for the past two years have been most gratifying.

True, nature came to our aid and we were blessed with two consecutive years of highly favorable harvest weather, so now, with a backlog of early variety seed stocks of unlimited quantity, we can continue to pay careful attention to the variety of beans planted as to maturity date. No matter what the yield per acre or the oil content of the beans, nearly all is lost if they can not be harvested in prime condition.

No processor, by any method of operation, can economically process soybeans that are not in good condition from the standpoint of maturity, moisture content, freedom from dockage and foreign material. Therefore, one of the "musts" of soybean processing is the availability of quality soybeans, "quality" in every sense of the word.

Hand in hand with early variety progress, has been the development of the

high oil yielding varieties, particularly the Lincoln. Twenty-one tests over a five-year period at our Agricultural Experiment Station and also in cooperation with the U. S. Department of Agriculture, have shown that Ohio certified Lincoln soybeans average 20 percent oil content as compared to normal 18 percent for the best varieties now grown. The same series of tests revealed that the Lincoln soybean yields an average of four and one-half more bushels per acre than the other varieties. On this basis an acre of Lincoln soybeans produces 376.6 pounds of oil as compared to only 302.6 pounds of oil per acre from standard varieties. Lincoln soybeans have been added to the Ohio certified list and seed is now available to Ohio farmers. While to date, no processor has had experience in processing Lincoln beans in a sizeable quantity, *on its record*, it is the most outstanding of all soybean varieties ever introduced.

Therefore, it would seem that the two major objectives not only of the soybean processors, but of the entire soybean industry in Ohio, are to establish, not only during the present emergency but for the post-war period (1) the planting of a variety that will mature in time to be reasonably sure of harvesting before the usual unfavorable weather sets in; (2) the planting of a high oil yielding variety. With these two major objectives accomplished, there is no doubt as to the place that soybeans will hold in the future of Ohio agriculture.

—s b d—

## PLEASED WITH LINCOLNS

J. Leo Ahart, one of the winners of the Iowa state soybean yield contest for 1944, with a field of Lincolns, is pleased both with winning and with the Lincoln variety.

Ahart writes J. M. Strayer, secretary of the American Soybean Association:

"I credit not myself for a winning yield, but must in fairness credit the Lincoln variety of soybeans for it. Lincoln has what it takes out here in Crawford County, anyway, to produce a satisfactory crop of beans, taken from any standpoint.

"Our crop went through a severe hail-storm when just coming through the ground. The extra large leaves are a factor in weed control. We find no fault with its standability. They combine just swell.

"While growing, one gets the idea that the heavy crop will be a problem to combine. But as the stems ripen, they seem to pull themselves up off the ground so the sickle can easily get under.

"We shall plant Lincoln exclusively in 1945 and plan 50 acres to be certified."

—s b d—

The 11th annual conference of the National Farm Chemurgic Council, scheduled to have been held in St. Louis March 28-30, has been postponed in accordance with the request of Office of Defense Transportation. Plans for distribution of papers that were to have been presented are being worked out.

## Part of General Mills' Iowa Plant

Storage bins of General Mills, Inc., processing plant at Belmond, Iowa. Capacity 500,000 bushels. The plant was opened in January.

—Photo Belmond Independent

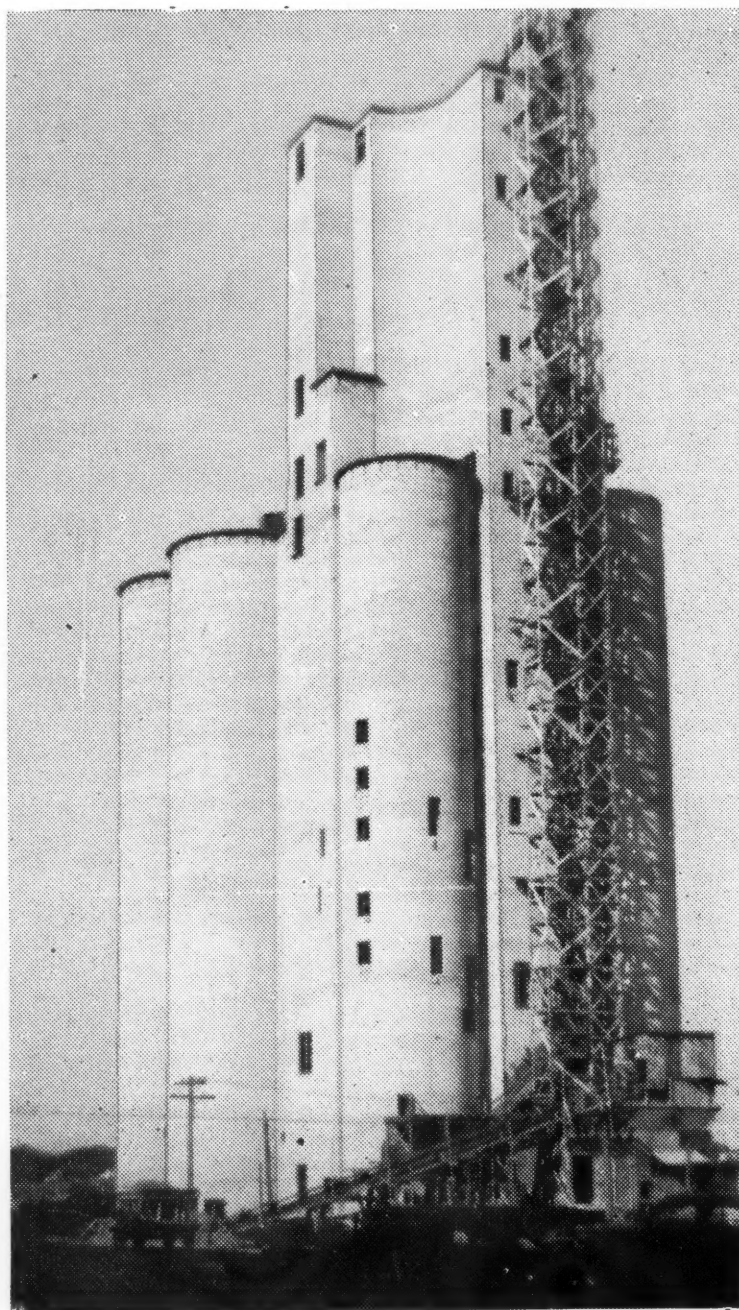




FIGURE 1. — Where soybeans are grown in Ohio (1943 data, each dot represents 2000 acres for grain.)

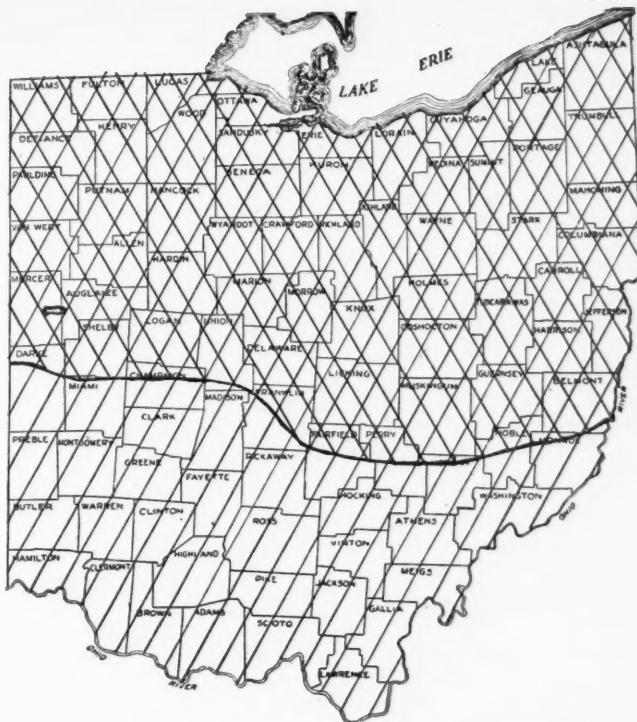


FIGURE 2. — Adaptation of Richland. /// Early enough to precede winter wheat. xxxx Full season.

# BOOST OHIO YIELDS

With Early,  
High-Oil Varieties

By DAVID F. BEARD\*

Extension Agronomist Ohio State University

IN 1938 soybeans changed from a hay to a grain crop in Ohio. For the first time in the State's history a larger acreage was harvested for beans than for hay. That year the acreage for grain was 281,000. In two years this figure had doubled; 570,000 acres being harvested for grain in 1940.

War drums had already begun to rumble and an increased demand for fats and oils called for still greater production. In the next two years acreage doubled again and last year, 1944, it was 1,321,000.

Thousands of Ohio farmers had to learn quickly how to grow soy-

beans. This involved not only better cultural practices but also the choice of better varieties. In spite of their inexperience, farmers succeeded in increasing the State average yield during the five years of rapid expansion, 1939-43. Yields and acreages by

five-year periods prior to this were:

	Bu/Acre	Ave. Acreage for Grain
1924-28	13.3	20,000
1929-33	16.1	33,600
1934-38	18.7	148,400
1939-43	19.8	832,000

Obviously, during the past 20 years considerable improvement has been accomplished in soybean production. This has been due to (1) better varieties, (2) improved cultural and harvesting methods and (3) the utilization of more productive land for growing soybeans. As shown by Figure 1, the growing of soybeans for grain is now concentrated in the northwestern part of the State.

Richland, Dunfield and Mingo are widely grown varieties that have contributed to the improvement of the Ohio crop.

## RICHLAND LEADS

The most widely used variety in Ohio is Richland. In 1939 it was unknown to most Ohio farmers. Large quantities of Richland seed were brought into the State that year by Certified Seed producers who rapidly spread the variety throughout the northwestern part of the State. Farmers quickly

accepted Richland because it gave them something no other variety had—lodging resistance. Its standing ability, relative earliness, and shortness permitted prompt and rapid harvesting with the combine. The small amount of straw left after combining was an advantage in speeding soil preparation for wheat seeding. Other varieties either lacked these advantages or fell down in yield. Richland, therefore, couldn't miss. In five years it rose to No. 1 position in Ohio and is now grown on a third of the grain acreage.

But Richland has its disadvantages too. On poor soils or over the high spots of a field it seldom grows more than a foot tall. Dry seasons seem to be equally effective in keeping down the height of Richland. Because of the dry summer in 1944, many Ohio farmers were disappointed with the growth of their Richlands. However, in spite of the unsatisfactory appearance of many of the fields during the growing season the yields were not nearly so disappointing. At harvest time farmers wondered where all the beans came from.

Now and for some years to come Richland will undoubtedly continue to fill an important place in Ohio, as shown by Figure 2. When planted early, and in favorable seasons, Richland can be harvested early enough to be followed with wheat in most of Ohio. However, it cannot be relied upon



BEARD

\* The writer acknowledges with appreciation the valuable suggestions and assistance of Lewis C. Saboe, Assistant Agronomist, U.S.D.A., in the preparation of this article. Acknowledgment is also made of data obtained from The U. S. Regional Soybean Laboratory reports.

regularly to precede wheat except in southern Ohio.

Mingo and Dunfield are the other two varieties that are chiefly responsible for the present satisfactory status of soybean production in Ohio. They yield a little better than Richland but are later in maturity and do not stand as well. Although they are of about the same maturity as the new Lincoln they lodge more and yield less.

If Lincoln performs as well in the future on Ohio farms as it has throughout the State during the past five years it should replace as rapidly as seed supplies permit, the various strains of Manchu, Mingo, Scioto, Illini, Dunfield, Mandell and all other previously grown varieties, except Richland. During these five years that it has been tested throughout Ohio it has, with one exception, been the highest yielding variety in all tests. Of the varieties that Lincoln should replace, Mingo is the highest yielder. However, during this five year period in 40 tests, Lincoln averaged three bushels more per acre than Mingo.

In the same period it has outyielded Scioto, which is a week later, by more than four bushels per acre. In view of the past performance of Lincoln, it would certainly be unwise to grow other varieties of similar maturity if Lincoln seed is available.

Earlyana is another new variety which has recently been released and recommended for Ohio farmers. It is sufficiently early to precede winter wheat in the crop rotation in northern Ohio. The chief advantages of Earlyana over Richland are earlier maturity and taller growth. The extra height is an advantage on less fertile soil or under droughty conditions. However, Earlyana does not stand up as well as Richland. As far as yield and oil content are concerned

there is little if any difference between the two. Since Earlyana is definitely earlier than Richland it does have a place in northern Ohio that Richland cannot fill. That place is to precede wheat in the crop rotation. On soils of low fertility it also has the definite advantage over Richland of growing taller. The region primarily suited for this variety is shown in Figure 4.

#### NEWER VARIETIES

Thousands of new strains are being grown and tested in Ohio each year. At present greater emphasis is being placed on developing an early variety that will have the combined good qualities of our two present early varieties — Richland and Earlyana. Some of the material under preliminary tests seems to exhibit these qualities.

To date little attention has been given soybean varieties regarding their reaction to the several soybean diseases now present in Ohio. Although no great loss from diseases has occurred in soybean production in the past, it is inevitable in the future unless definite precautionary measures are taken. The disease reaction of present varieties as well as varieties being developed is being carefully studied so that growers may avoid serious disease losses.

Although Lincoln is an excellent variety it would be better if it had greater lodging resistance and disease resistance. Some improved strains with Lincoln as one parent are now being tested that appear to have these qualities. But in the cooperative testing work among states of the soybean belt a new strain undergoes a vigorous examination and testing before it is released for commercial production. Consequently, even though new superior selections are being made each year, a minimum of five years is

required to properly evaluate these before the best can be determined for seed increase. Another year or two of seed propagation under close supervision must precede the release of the variety to farmer-growers.

Developing improved varieties is a time consuming process. The Earlyana and Lincoln varieties are excellent examples. Earlyana was first selected at the Indiana station in 1931 and Lincoln was first selected at Illinois in 1934. Both of these were approved for release in 1943. The growing seasons of 1943 and 1944 were reserved for controlled seed increase and not until 1945 was seed of these two varieties released for commercial production. Improved varieties will continue to appear from time to time as the cooperative breeding and testing work continues.

— s b d —

#### FROM MINNESOTA

J. R. Coonrod, secretary of the Civic and Commerce Association, Montevideo, Minn., writes as follows concerning soybeans in west central Minnesota:

"Soybeans are just becoming a permanent crop for Chippewa County farmers. Over 15,000 acres were produced in three west central Minnesota counties, Chippewa, Lac Que Parle, and Yellow Medicine.

"Varieties approved by the University of Minnesota are being grown extensively by farmers in this trade territory. They include the Mandarin, Minnesota Manchu, and Habaro. The success of soybean production in this area gives promise of financial returns, and according to experienced growers, the crop will continue to have a prominent place in the rotation."

FIGURE 3—Shaded area shows Lincoln adaptation. xxxx Full-season.

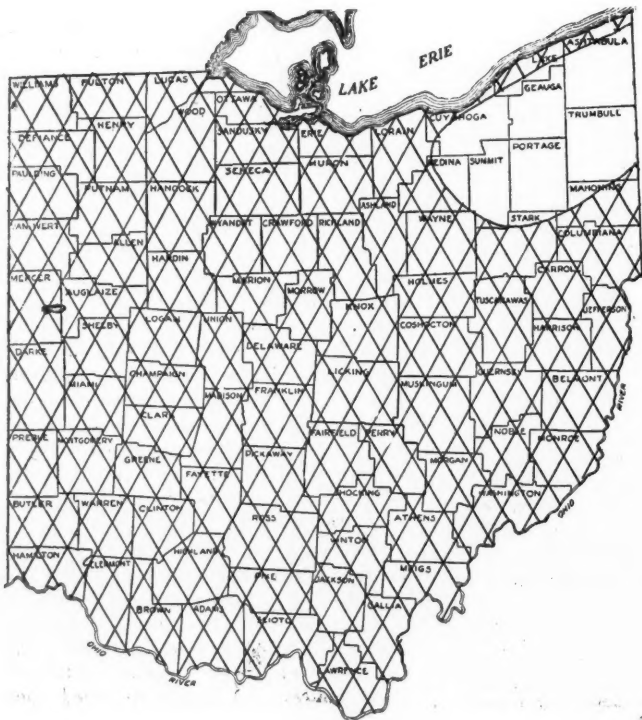
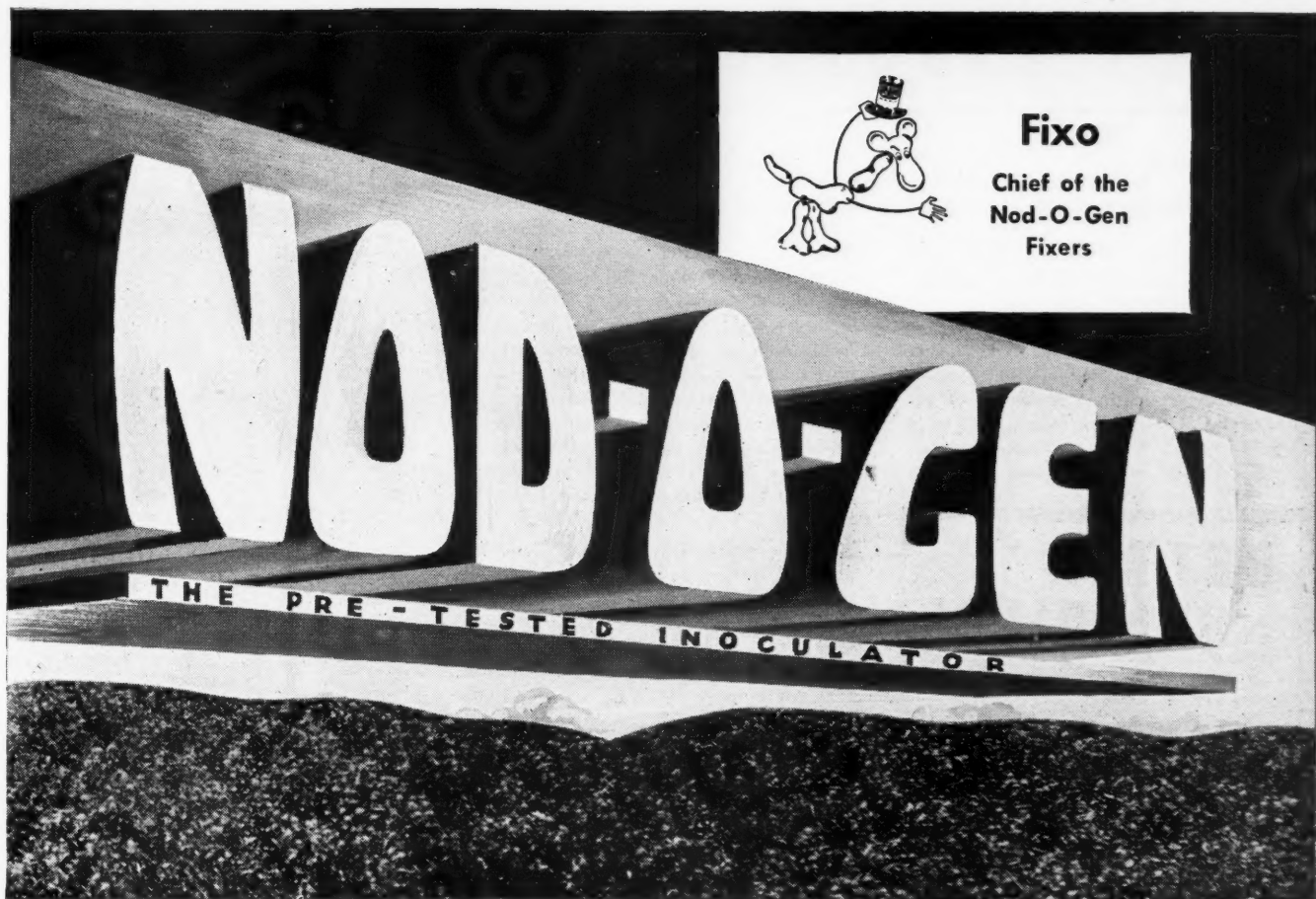


FIGURE 4. — Earlyana fits Northern Ohio. ///Early enough to precede winter wheat. In Unshaded Area Earlyana matures earlier than necessary even for wheat seeding.





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17



### Use of Soys As Green Manure

Various growers of vegetables on the older muck or peat soils in Ohio have expressed the opinion that their farms are becoming progressively less productive with time, in spite of anything they can do in the way of fertilizer applications. The Ohio Agricultural Experiment Station has examined many of these soils and by means of various chemical tests have found them to be

in a high state of fertility. Applications of many minor elements, in conjunction with varying amounts of the more common plant nutrients, have produced no great improvement in crop yields. Sterilization of the muck did result in substantial increases in yields with celery, the test crop. At present, the large scale sterilization of muck soils seems prohibitive in cost, and there is little known as to the permanency of such treatment.

In order to study the problem further, Donald Comin of the Horticulture Department has, since 1940, tested the effect of crop rotation, with and without the use of cover and green-manure crops.

On one series of plots it was found that plowing down a full summer's growth of soybeans every other year increased the yield of onions by an average of 30 percent at the end of 4 years. The onion yields during 1944 were 722 bushels per acre on the continuously-cropped plot and 934 bushels per acre on the plot planted to soybeans every other year. Other vegetable crops responded similarly with a 32.8 percent increase for celery, 14.3 percent for cabbage, 36.6 percent for sugar beets, and 14.7 percent for potatoes.

Since muck soils in general are very high in nitrogen after the soil warms up in the spring, it is questionable whether all of the beneficial effect of the soybean green-manure crop could be attributed to the nitrogen it supplies. Whether lesser

amounts of plowed-down organic matter will continue to result in increased yields is yet to be ascertained.

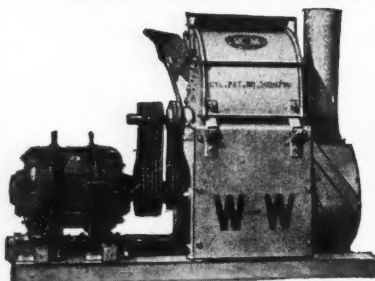
- s b d -

### INDIANA LADY IN THE BEANS



This is Mrs. Fred H. Stuckwisch, Vallonia, Ind., in a 60-acre soybean field. To the left are Indiana certified Lincolns, to the right are certified Patokas. The Stuckwishes have been growing beans for 30 years.

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are what you get when you use W-W Grinders. The sturdy construction of these machines, built to give continuous service at minimum cost, assures you better grinding and bigger profit for your job.

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Feed openings 12" to 36" wide.

Prices \$90.00 to \$1092.00.

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WICHITA, KANSAS

### More About Pod Records

In February the *Soybean Digest* reported the soybean plant of M. J. Rinker, Grand Junction, Iowa, which had 482 pods and asked if any of our readers could beat this record.

John V. Flitsch, Potosi, Wis., calls our attention to the following from the February 17 *Prairie Farmer*:

A. M. Masters, Morgan Co., Ill., reports finding a volunteer soybean plant in his potato patch last fall which had 740 pods and produced about a half-pound of seed.

But still higher numbers of pods on a plant are reported by Russell S. Davis, Clayton, Ill., who writes:

To the Editor:

In the February issue of *Soybean Digest* you record several plants with a high number of pods, and ask if anyone found a plant with a higher number.

Each year we plant part of our F2's in hills 40 inches each way, one bean per hill. In 1943 we plowsole fertilized part of the plot.

Here are some of the better plants: (at bottom of column)

We were surprised to find the dry, empty pods weighing more than the stems. And that only about half of the total weight of the plant was beans.

Very truly yours,  
Russell S. Davis,  
Clayton, Ill.

Can anybody top this report?

	Selections		
	ILM 41-5-2 (1)	ILM 41-5-2 (2)	SM 13-3-1
Number of pods	726	1043	813
Number of beans	1815	2564	2030
Weight of beans	8 oz.	11 cz.	8.1 oz.
Weight empty pods	4.7 oz.	6 oz.	4.7 oz.
Weight of stems	4.3 oz.	5 oz.	3.4 oz.
Ratio of beans to pods, stems	.85 to 1	1. to 1.	.94 to 1.

# When to Plant in Mississippi

By R. B. CARR<sup>2/</sup>

A test to determine the time to plant soybeans was conducted at the Delta Experiment Station at Stoneville, Miss., in 1943. The experiment included the four varieties Arksoy, Ogden, Mammoth Yellow, and Magnolia, planted at 3-week intervals beginning April 3 and continuing through July 15. Even though the rainfall was below normal throughout the planting season, there was sufficient moisture to secure good stands with all varieties at every planting except the one on July 15. On this date the soil was so dry that all of the varieties failed to emerge. The growth of the beans planted April 3 through June 3 was normal, averaging approximately 29 inches in height. The growth of those planted June 24 was greatly retarded by the drought of July. The average height for this date of planting was 21 inches. The varieties were harvested as they matured. The yield and other agronomic data and percentage of oil and protein are given in table 1.

There was little variation in the yield of Ogden for the plantings April 3 through June 3. The highest yield of Arksoy and Mammoth Yellow was obtained when planted May 13. The yield of Magnolia when planted April 3 and June 24 was considerably less than when planted April 24 through June 3. The quality of the seed of Ogden and Arksoy was better on the medium to late plantings than on the earlier plantings. That of Magnolia was best for the May 13 planting which matured October 8. Those harvested October 22 were of slightly inferior quality. The quality of seed of Mammoth Yellow was better on the early plantings than on the late plantings.

The percentage of oil in Ogden was greater in the early plantings than in the late plantings. In the other varieties there seemed to be no relationship in the date of planting and in the content of either the oil or protein.

These data are in agreement with previous investigations and indicate that soybeans should be planted from April 15 to May 15 for the best results.

<sup>1/</sup> Cooperative investigations between the Bureau of Plant Industry, Soils, and Agricultural Engineering, U. S. Department of Agriculture; the U. S. Regional Soybean Laboratory; and the Mississippi Agricultural Experiment Station.

<sup>2/</sup> Assistant Agronomist, Division of Forage Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Department of Agriculture.

Table 1. Dates of planting soybeans: Stoneville, Mississippi, 1943

Variety	Date		Yield bu. per acre	Percentage		Plant height inches	Seed quality (2)
	Planted	Mature		Oil	Protein (1)		
Ogden	4-3	9-25	27.9	21.4	41.0	24	3.0
Ogden	4-22	9-28	24.4	21.0	42.5	25	3.3
Ogden	5-13	10-8	26.5	20.7	42.4	27	2.3
Ogden	6-3	10-18	27.7	20.0	42.2	27	2.7
Ogden	6-24	10-24	20.3	19.6	41.3	19	2.3
Arksoy	4-3	9-25	16.7	18.8	45.5	23	4.0
Arksoy	4-22	9-28	15.2	18.3	46.0	28	3.3
Arksoy	5-13	10-8	20.0	18.5	44.4	27	2.3
Arksoy	6-3	10-15	16.9	17.9	45.5	25	2.0
Arksoy	6-24	10-22	12.2	18.7	43.2	17	2.0
Mammoth Yellow	4-3	10-22	18.3	17.9	44.7	26	2.0
Mammoth Yellow	4-22	10-24	18.5	18.0	44.5	28	2.0
Mammoth Yellow	5-13	10-28	20.5	18.5	43.7	31	2.3
Mammoth Yellow	6-3	10-29	18.3	17.6	44.4	30	3.0
Mammoth Yellow	6-24	10-29	13.7	17.1	46.5	25	4.0
Magnolia	4-3	10-4	9.6	19.3	45.3	35	4.0
Magnolia	4-22	10-7	16.1	19.7	45.1	39	3.3
Magnolia	5-13	10-8	17.8	20.5	43.3	35	2.0
Magnolia	6-3	10-22	16.7	20.2	43.8	32	2.3
Magnolia	6-24	10-22	10.9	20.3	43.2	23	3.0

(1) Samples analyzed by the U. S. Regional Soybean Laboratory, Urbana, Ill.  
(2) Seed quality: 1, Excellent; 3, Good; 5, Poor.

## Another billion dollar highway program



IN thinking about work after the war, don't overlook the 230,000 miles of steel "highways" which the railroads have built and maintain at their own expense. These "highways" provide jobs for more than a quarter of a million men working on construction and maintenance of tracks and roadway—jobs for more than a million other railroad workers—besides still other thousands in the mines, the mills and the forests where roadway materials and supplies are produced.

More than that—the railroads pay real taxes on these "highways," not for their own special benefit, but for the support of schools and other general services, including public highways and streets.



After the last war, between 1920 and 1930, the railroads spent more than four billion dollars for improvements on these "highways," and in addition more than three-and-a-half billion dollars for betterments in equipment. After this war, a similar program will be required.

So there's another highway program which could make a lot of postwar jobs, and which needs no more than a public policy of treating all forms of commercial transportation alike—letting each one pay its own way, which includes the payment of the general taxes upon which governmental services depend.

ASSOCIATION OF  
**AMERICAN RAILROADS**  
*All United for Victory*



## FEEDING



### Levels for Reproduction\*

The reports of Christiansen, Halpin, and Hart (1940) and of the Cornell workers (quoted by Almquist, 1943) indicate that good production may be obtained when soybean oil meal is the sole protein supplement in a laying ration. However, the reports of Byerly, Titus, and Ellis (1933a) & (1933b); Byerly, Titus, Ellis, and Nestler (1937);

Christiansen, et al. (1940); and Wilgus and Gassner (1941) indicate that such rations will not support maximum hatchability. The data of the latter workers showed that 5 percent of meat and bone scrap in an all-mash ration including soybean oil meal enabled normal hatchability while the milk protein, casein, did not. The present necessity for conserving animal protein sources and using all the soybean oil meal possible led to the initiation of studies to ascertain the minimum amount of meat and bone scrap protein required in breeding rations.

In the fall of 1942 three pens of 29 New Hampshire pullets and 3 cockerels each were placed on experiment at about 26 weeks of age, using total confinement. These birds had been reared under range conditions. The basal mash was of the following composition: Pulverized barley, 15; ground wheat, 15; wheat grey shorts, 10; wheat bran, 10; alfalfa meal, 5; cottonseed meal, 5; dried whey, 7.5; crushed oyster shell, 5; pulverized limestone, 2; salt (iodized-manganized), 1; 400 D fish oil, 0.5. The salt supplied 100 ppm of manganese and 10,000 ppb of iodine in the mash.

To this basal mash were added the protein supplements shown in Table 1. Steamed bone meal and plain salt were increased with the increase in soybean oil meal to maintain approximately the same calcium, phosphorus, and salt levels. Corn meal was added to make 100 parts. The soybean oil meal (mechanical screw press process) and meat and bone scrap (50 percent protein) were composite samples representative of materials available locally. During two 8-week periods synthetic riboflavin mixed in pulverized oats was used in place of dried whey to supply an equivalent amount of this vitamin. The mashes were fed with an equal amount of a grain mixture composed of whole wheat, whole barley, and whole corn in equal proportions. Crushed oyster shell was available ad libitum. Supplementary light was supplied to assure a 14-hour day. The duration of the trial was 40 weeks.

The results shown in Table 1 demonstrate that egg production, egg size, body weight, and mortality were satisfactory on the high soybean oil meal ration but

that hatchability was reduced. Even more striking was the high mortality which occurred during the early life of the chicks hatched on this ration in contrast to the excellent livability from the other pens. The chicks that died showed no symptoms except weakness and failure to grow. The use of synthetic riboflavin in place of dried whey as a riboflavin supplement did not affect hatchability.

A study of the effect of various amounts of soybean oil meal and meat and bone scrap on the reproduction of single-comb White Leghorn chickens throughout several consecutive life cycles is in progress. The early reproductive behavior of these birds given in Table 2 shows that attainment of 20 percent production was delayed 7 weeks by the use of soybean oil meal as the sole protein supplement in the ration.

The evidence in Experiment 1 corroborates that of other workers to the effect that egg production may be satisfactory on a ration in which soybean oil meal is the sole protein supplement. However, the data from Experiment 2 indicate that onset of production may be retarded when the birds are reared and maintained into the laying period on such a ration. The inclusion of 5 percent of meat and beef scrap in the mash, thus contributing about 8 percent of the total protein in the ration, was adequate to provide satisfactory production and reproduction.

H. S. WILGUS, JR.  
D. V. ZANDER

Colorado Agri. Exp. Sta.,  
Ft. Collins, Colo.

Received for publication May 12, 1944.

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- \*Approved by the Director as paper No. 171. *Sci. Jour. Series, Colo. Agri. Exp. Sta.*

**Soy**

**Cargill**

INCORPORATED

**PROCESSORS**

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TABLE 1.—Experiment 1. Production and reproduction

Pen	Soybean oil meal	Meat and bone scrap	Production	Egg weight	Gain in body wt.	Mortality	Eggs set	Fertility	Hatchability
No.	percent	percent	percent	oz/dz	gm.	percent	No.	percent	percent
4	5	10	59	24.2	198	28	1103	95	71
5	12½	5	62	24.5	13	28	1179	85	69
6	17½	0	58	24.4	116	17	1216	81	60

TABLE 2.—Experiment 2. Production, 24 to 40 weeks of age

Pen	Soybean oil meal	Meat and bone scrap	Age at 20% production	Production	Egg wt. at 40 wks.	Body weight 24 weeks	Body weight 40 weeks
No.	percent	percent	wks.	percent	oz/dz	gm.	gm.
1	6	15	23	27	21	1381	1510
2	12½	10	23	30	21	1439	1569
3	20	5	23	29	21	1348	1591
4	27½	0	30	26	22	1335	1557

## SURVEY SHOWS

# More Margarine Used

Sixty-one percent of American housewives — double the proportion found in a 1941 survey — now have fortified margarine in their homes or use it regularly. This is one of the important findings in a large-scale survey just completed by the National Association of Margarine Manufacturers. Many of the same questions used in a 1941 survey of margarine acceptance were repeated in order to discover why margarine consumption has skyrocketed in those years.

A significant finding in the survey is the fact that margarine now finds a place on the tables of the wealthy and is being served in a large proportion of homes in the upper-income brackets. Acceptance of margarine for both cooking and table use among upper-income families has increased six times over figures compiled in 1941. Housewives indicated that they no longer feel any social stigma attached to the serving of margarine.

The survey also showed an increased acceptance of margarine in large cities where three times as many housewives reported its use as in 1941. Smaller cities and rural areas have long accepted margarine on a larger scale than urban populations.

In a detailed breakdown of the questioning, which was carried on in twelve localities throughout the Middle West, it was shown that most housewives interviewed now serve margarine on the family table.

Out of a list of twelve foods which have come to the fore in wartime buying, margarine was the only item in this list to show any significant change since 1941.

In the older survey, almost half of the housewives interviewed reported that they had never used margarine. The 1944 results show close to universal acceptance.

As to margarine's varied uses, the 1944 figures show more than doubled acceptance for table use, seasoning and frying. The report showed a marked increase in the consumer's awareness of margarine's nutritional importance.

The survey results show that margarine's color is an important factor with housewives. Most of the women questioned said that coloring their margarine takes them ten minutes or more and expressed dislike for this extra job. Amplifying their statements on home coloring, many margarine users said they would gladly use more if federal and local laws were revised so that margarine could be sold in its natural yellow color.

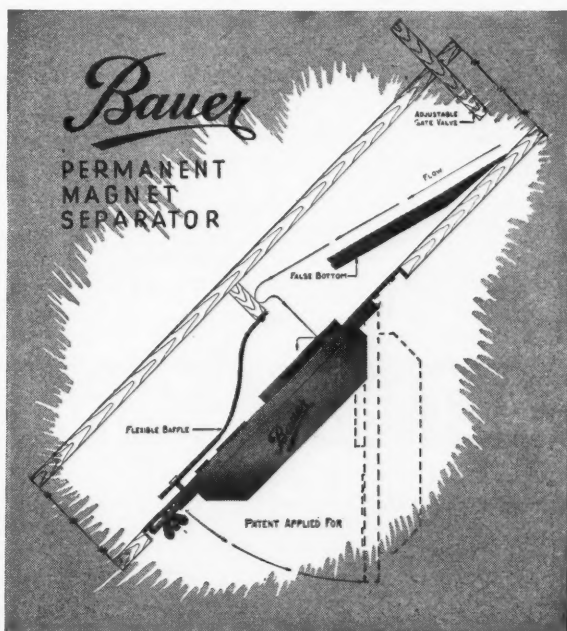
The National Association of Margarine Manufacturers has estimated 1945 production of margarine for domestic and lend-lease consumption at about 600 million pounds.

## CALIBRATING BEAN DRILLS

The seeding rate for soybeans in bushels per acre may be calculated by dividing the number of soybeans planted per yard of row by the number of inches between the row. Eg. Fourteen seed per yard in seven inch rows equal two bushels per acre and 30 seed per yard in 40-inch rows equal a three peck rate. This rule is a close approximation for all medium size soybeans varying from 2800 to 3000 seed per pound such as Lincoln, Manchu, Richland, Dunfield and Earlyana. It applies best to a seed size of 2900 per pound — 2904 to be exact.

The rule applies to all seeding rates and distances between rows, and, while not 100 percent correct for all sizes of soybeans, it is simple and easy to apply. The test run can be made by simply running the seeding equipment in gear over a hard surface and determining the average number of beans delivered per yard of row. What if it is not 100 percent correct? Plants per unit area is the main thing. It gives the proper distribution of seed by adjusting for size. The actual seeding rate in volume will be greater when large sized seed is used and less when small sized seed is used than the rule indicates, which after all is as it should be.

— R. R. Mulvey, Agronomy Department, Purdue University.



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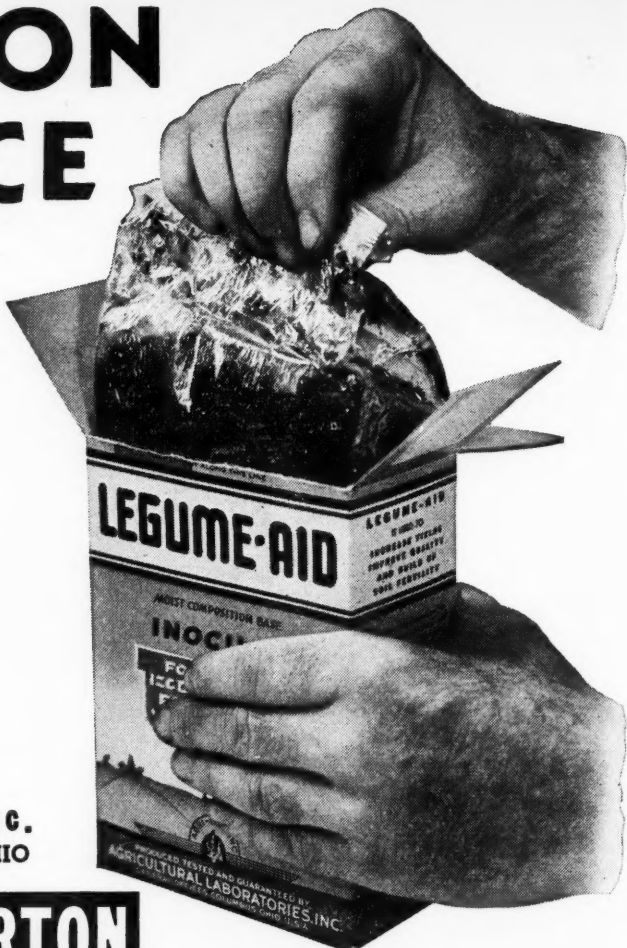
LEGUME-AID assures you first:— That the inoculating bacteria it provides have been field selected, laboratory checked and crop tested. Second, that these bacteria come to you with their potency fully protected by the famous inner-lined carton package. Third, that the system of packing exactly enough inoculant in each unit to treat five bushels of soybean seed, means both economy and convenience for you. Insist on LEGUME-AID.



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## RESEARCH



### Biologic Value of Soy

This country, with its vast food producing capacity and food stores, has developed average food habits at a level not even approached elsewhere, reports the February 3 issue of the *Journal of American Medical Association*. In the United States the soybean has not been the staple, main source of nutriment that it is to large portions of the world's inhabitants. Soybean flour has been increasingly included in breads and pastries; the small increase in protein, the "richer" color and the nutty flavor imparted by modest admixture of this material are some of the reasons for the growing diversion of soybeans to the production of low fat soy flour. The possibility, emphasized by the war, that the large quantities of soybeans raised in the United States might provide human food which could be substituted for more expensive or less readily available nutrients ordinarily consumed has received attention in the present national emergency.

Of particular interest in this connection is the suitability of the protein of soybeans for human consumption. The dry seeds contain about 34 percent of protein; as some 216,000,000 bushels were produced in 1944, this legume represents a tremendous reserve of food protein, provided it is physiologically available in the body. Although the long history of the use of soybeans as human food would seem to argue a priori against any considerable detrimental effect, convincing evidence of its value in this respect has been lacking. In a recent experimental study<sup>1</sup> comparison of the net retention of nitrogen by adult human subjects when soybeans provided the protein with the same values when whole egg was the main protein of the experimental diet was measured. The assumption was made that the protein of the whole egg is completely digested, absorbed and utilized, in which case the fecal and urinary nitrogen when egg was consumed would represent the evidence of irreducible protein metabolism.

Soybean protein in three forms was studied: as whole cooked, field grown beans, as commercial low fat soy flour and as a prepared soybean milk. The true digestibility of the protein in the three products was 90.5, 94.0 and 89.6 percent respectively when compared to whole egg protein. These values are somewhat lower than those for food proteins of animal origin but superior to those usually observed with other legume protein. With respect to the biologic value of soybean protein, the values were 94.5, 91.7 and 95.3 percent respectively, indicating that, tested under the conditions cited, soybeans in the forms employed can be considered an excellent source of protein in adult human nutrition.

In view of the current enormous production of soybeans, our national nutrition, as far as protein is concerned, is

amply safeguarded against an extensive emergency. Likewise, in the occasional instances in which usual food protein is not well tolerated, the soybean offers additional possibility of dietotherapeutic adjustment with respect to protein nutrition.

<sup>1</sup> Cahill, W. M.; Schroeder, L. J., and Smith, A. H.: *J. Nutrition* 28: 209 (Sept.) 1944.

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### MORE ABOUT AUTO PLATES

To the Editor:

Many thanks for copy of your publication and especially the article on the

license plates. It is very well written except for the fact that poor Ole Bobo who was sent off to Arkansas where license plates would be no temptation, but — Arkansas is using a fibre plate too.

It will be interesting to know whether Bobo continues his license plate chewing activities in Arkansas as he did in Illinois, or perhaps, he will be too busy looking after the aged at the St. Joseph's Home. Who can tell!

Very truly yours,  
Geo. M. Eisenberg,  
American Decalcomania Co.  
Inc.

Those who missed the first round of this discussion see February DICAST, page 18.—  
Editor.

## Mr. Spot Commodity Buyer!

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## PERSONNEL CHANGES BY SWIFT & CO.



H. S. BYRD

Two important personnel changes in Swift & Company's soybean oil mill operations have been announced by Vice-President P. M. Jarvis.

Sam D. Hollett, manager of the company's plant at Fostoria, Ohio, has been appointed manager at Frankfort, Ind., where a new Swift soybean oil mill is now under construction. He takes over his new duties about April 1.

Succeeding Hollett at Fostoria will be H. S. Byrd, formerly assistant manager of the Swift oil mill at Cairo, Ill. He was transferred to his new position March 5.

Hollett has been manager of the Fostoria plant since it was established in 1940. Prior to that he was sales manager at the

Champaign, Ill., mill. Moving to Frankfort will be in the nature of a homecoming for Hollett, who was born in Huntington, Ind., and spent much of his early association with Swift & Company contacting the feed and grain trade in Indiana.

Byrd is also a veteran in the oil mill business, becoming identified with it immediately after his discharge from the United States Navy in 1919. Much of Mr. Byrd's training was in the south and west.

Construction operations on the new Frankfort unit have been started by the John S. Metcalf company of Chicago which has the contract for building the reinforced concrete storage bins and an attached work house for cleaning and drying beans. Six other buildings, in addition to the storage elevator, will be included in the completed plant layout. The contract for these buildings will be let soon.

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## DOZEN DISEASES IN ILLINOIS

Nearly a dozen recognized diseases of soybeans were observed in Illinois fields last year. However, of this number three were of economic importance, reports Benjamin Koehler, professor of crop pathology, University of Illinois College of Agriculture. A loss of 7 percent of the soybean crop from these three has been estimated.

Four percent loss to the crop was at-

tributed to bacterial pustule, according to Koehler. This disease is an old one, having attacked the soybean plant since the introduction of the crop to the state. The disease attacks the leaves primarily, causing brown areas, and later the leaves drop off. In seasons with high humidities, losses have been more severe.

Bud blight, a virus disease, caused an estimated 2 percent loss in soybean yield. In many fields damage was very slight, while in others a 30 percent loss was estimated. This disease, observed for the first time in 1940, causes a severe stunting of the top leaves of the plant which stops the growth of the main stem, or the pods may become spotted with dark brown blotches, or both conditions may occur.

Another new disease called wild fire was third in importance. This same disease has been troublesome on tobacco for many years. Last year it was found on soybeans as far west as Kansas.

None of the popular soybean varieties grown in Illinois is disease-resistant. During the past two years, tests with seed disinfectants, or seed treatments, have been carried out on an extensive scale, but the results are not too promising.

Koehler indicated that until research on soybean disease control is further advanced, the only concrete suggestion is to grow soybeans in rotation and not crop a piece of land to soybeans continuously. This measure, while helpful, still is not an adequate means of disease control, he concluded.

## Use **FULTON** Quality COTTON BAGS

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AT MINNESOTA . . .

# Field Varieties Found Edible

Field and edible varieties of soybeans proved about equally desirable in cooking and baking tests carried out in 1944 at the College of Agriculture, University of Minnesota. Field and vegetable varieties of soybeans were prepared by the class in experimental cookery under the supervision of Mrs. L. S. Leavitt, instructor of the Home Economics Division, and judged by staff members of the Agronomy Division and by three members of the class.

Numbers were assigned to the different varieties so their identities were unknown until after the baking and judging had been completed. Based on the scores of all the judges, Ontario and Pagoda, both field varieties, scored the highest. The staff members of the Agronomy Division scored the varieties in the following order on the basis of 30 as perfect:

VARIETY NAME	Score on basis of 30 as perfect
Chusei.....	24.33
Giant Green.....	24.30
Osaya.....	23.82
Kanro.....	23.16
Ontario.....	23.12
Sioux.....	22.50
Kabott.....	22.27
Pagoda.....	22.04
Bansei.....	21.99
Manchu Wis. 6.....	20.67
Habaro.....	20.38
Mendota.....	20.20
Mandarin Wis. 507.....	20.11
Sac.....	20.00
Green 19610.....	19.20
Hidatsa.....	18.33
Etum.....	15.43
Sato.....	14.92

Field variety names are in italic.

The narrow range in total scores indicates that most of the varieties were satisfactory as baked beans. Each of the five varieties scored below 20 was judged low in one or more of the four characteristics: Skin, color, texture, and flavor. The variety Green 19610 was low in texture and flavor; Hidatsa was not attractive in color; the variety Etum did not hold its shape well and was low in flavor; Sato, a black bean, was off in color.

The beans were soaked overnight at room temperature in three times their volume of water. Water not absorbed was discarded. Preparatory to baking, the beans were placed in a pressure cooker with two cups water and a teaspoonful salt added for each cup dry beans and cooked under 15 lbs. pressure for 12 to 15 minutes or they were simmered in an open kettle for 1½ to 2 hours with 6 cups of water and a teaspoon of salt. To each 3 cups beans put into the baking dish there was added ¾ teaspoon dry mustard, ⅛ teaspoon black pepper, 1 teaspoon salt,

2½ tablespoons molasses, 3 ounces diced salt pork, ½ cup water in which the beans were cooked. The pork was placed on top and additional cooking water added as needed to keep them moist while baking at 350° F. for about 1½ hours, or until done.

## IN NORTH DAKOTA

"The AAA has set up a small quota for soybeans for North Dakota — some 10,000 acres," writes B. E. Groom, secretary Greater North Dakota Association, Fargo, N. D. "This, I think, will be greatly exceeded if farmers can secure help. Our soybean program has been very adversely affected on account of labor shortage. The farmers up here have a terrific job to meet the goals set up for them. This year it has resulted in the reduction of such crops as require any extra labor or equipment."

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## SOYBEANS . . . and People



# THE NEW WONDER FOOD

By PHYLLIS AAMODT

Soybeans, the "new" wonder food, have been very prominent in the news lately. But you may ask, "When were soybeans discovered?" "Were the Americans the first to use soybeans?" "How may they be used?" "Are there any soybean products?" "How do you cook soybeans?" These and other questions I will try to answer in this paper.

Soybeans were discovered about 5,000 years ago by the people of the Orient. They were considered a poor man's meat long before the nutritive value was discovered. The Chinese coolie tells us that without soybeans in some form in the diet, he gets weak, fatigued, or exhausted. The scientific explanation is, of course, that aside from the communities near the coast where fish is obtainable, there is no other good source of protein for the working classes as rice, usually considered the staff of life in the Orient, does not have enough proteins and vitamins to maintain health.

However soybeans were not used in America for food until 1892 when, strange to say, they were used as a substitute for coffee. During the first World War soybeans were used for fats and some for flour but, because of the peculiar taste, after the emergency was over they were forgotten except for their use as a rotation and forage crop. However, some agricultural scientists still kept urging the people to use them as a food. One of

these men was Professor George Briggs of the University of Wisconsin. He was so enthusiastic that he earned the nickname "Soybean Briggs," throughout the state.

During the present war, the Americans are not the only ones who are finding out the importance of soybeans. One of Hitler's first moves after coming into power was to plan a 2 million ton soybean reserve. Part of this reserve was to be used for chemicals and explosives and part of it was to be used for human food which was especially important for stretching out the insufficient supplies of animal food.

### CHEAP FOOD SOURCE

Soybeans are especially important now because they are a cheap source of proteins, vitamins, and oil, they are easy to grow, and they have a high nutritious value. To have a cheap, abundant source of protein is especially important now that meat, our main source of protein, is rationed. One reason that soybeans are abundant is that they are easy to grow.

All soybean products have not been used in the army as yet because all products have not been standardized. However, soy flour is being used and soya-pork, link sausage, bakery goods (soy), and soy macaroni products are expected to be used in the near future. If soy products are used correctly and prepared properly, in the army, it will mean 10 million boosters for them after the war. Soy flour is playing an important part in the K ration now. Soybeans are also being sent to remote places like Greenland and North Africa

• This is a rather remarkable article, in that it was written by a 14-year-old Hyattsville, Md., high school sophomore. She is the daughter of Dr. Olaf Aamodt, chief of the division of forage crops and diseases of the Bureau of Plant Industry at Beltsville, Md.

where they are being sprouted and used as a fresh vegetable. Soy sprouts are very rich in vitamin C and give the boys who are in places where it is impossible to get fresh vegetables, a fresh vegetable.

Soybeans also play an important part in lend-lease. The purchases include soya flour and grits, pork and soya links, dry soup concentrates, and concentrated cereal food. The soya flour and grits which are being shipped overseas are being used in meat products, commercial baking, ice cream, soups, and in place of milk. In 1942, more than 60 million pounds of soya flour and grits were purchased for lend-lease. In addition to this, about 33 million pounds of soybeans were shipped to Great Britain where they were ground into flour.

Soybeans are also used in school lunches. For example, in 1942, about 5 million pounds of dehydrated soups were purchased for school lunches. This soup consisted of 25 percent soybean flour or grits, about 15 percent dry skim milk, and approximately 45 percent dehydrated pre-cooked legumes. This added a great deal of high quality protein to the diet and, as the school lunches were originally designed for undernourished children, it was important to furnish a good supply of protein. The only disadvantage of this soup was that its texture and flavor could not be varied in day-after-day use. Now, however, that there is a limited supply of meat, soybeans and soy products will be coming more and more into use.

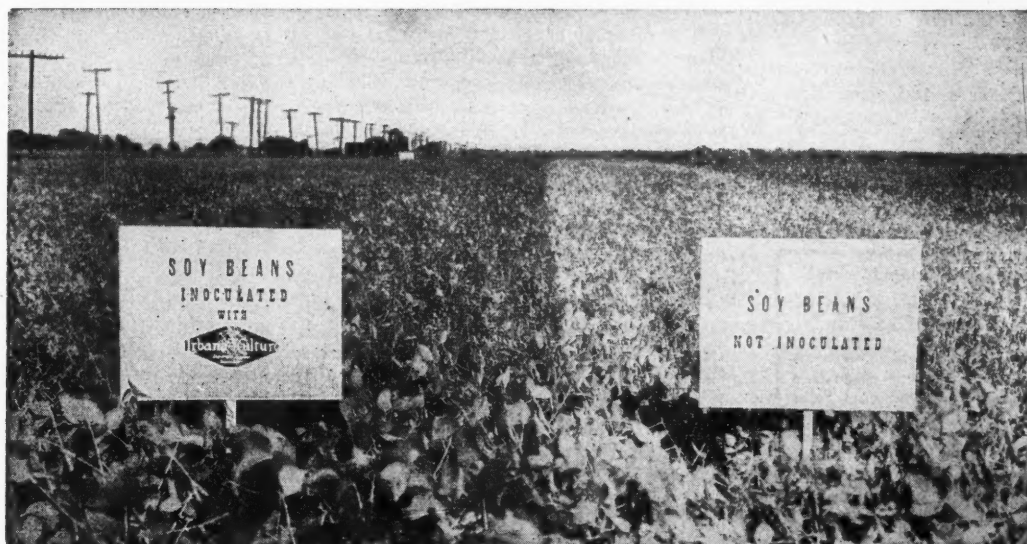
The home is also one of the important places where soybeans are coming into general use. Now, as meats are rationed, a good meat substitute is needed, that rivals meat in nutritive value and is very cheap. Soybeans are the answer for they fit the description perfectly. Although at first soybeans and soy products were hard to get, now you can not only buy most of them in your grocery stores, but many commercial products are using soy products. For instance, many bread stuffs that you buy now have soy flour in them.

Soybeans are not hard to cook and it is not hard to find ways of using them. One precaution is, "Don't try soybeans in your favorite recipes at first." Soybeans have a very nutty flavor and certain recipes have been tested and approved for their



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use. If, after trying them, you think that they would be suitable for your particular recipe, go ahead and try them. If soybeans are not cooked properly, a dislike for them may be acquired.

Dried soybeans are cooked in about the same way as other dried beans except that some varieties take a little longer to cook. They should always be soaked overnight.

Soy sprouts have an advantage over dried soybeans because they have a surplus of vitamin C. They are very easy to grow as all you need is a sink strainer or can with holes punched in the lid, some chlorinated water, a dark warm place, and 3-6 days to grow in.

First pick over the beans to make sure there are no cracked, shriveled, or dis-

colored beans, as they are likely to mold. Next wash and let soak over night in a dilute chlorine solution of 1 T. of 5% solution of sodium hydrochlorate ("Chlorox," "Planet" and "Rose X" are some trade names) to one gallon of water. Just use enough of the solution to cover well the beans. In the morning, rinse the beans well and put into a container such as a sink strainer, a flower pot, or a wide-mouthed mason jar, turned upside down with a piece of cheesecloth over the top. Plan for the beans to swell 4-6 times their original size.  $\frac{3}{4}$  cup soybeans will, in 3-6 days, produce a quart of bean sprouts. Keep them covered so that the seedlings will not turn green and keep them in a warm place. Every evening rinse the beans with the chlorinated water and several times during the day rinse with clear water. If the seeds are of good quality, they will sprout and be ready for use in 3-6 days. They should be a little over 2 inches long and should not yet have developed little rootlets. When we grew soybean sprouts, we used a sink strainer and did not use chlorinated water. We had no trouble with molds.

Soy sprouts may be used in salads, raw or cooked, may be cooked as a buttered vegetable, or may be used in dishes as chow mein or chop suey. One of our favorite dishes using soybean sprouts is "Chinese Beef and Cabbage." The recipe is as follows:

#### Chinese Beef and Cabbage

- 3 T. oil or fat
- $\frac{2}{3}$  t. salt
- 2 T. cornstarch
- 2 t. soy sauce
- 2 lb. cabbage, finely sliced
- 1 lb. flank, round steak, or other lean meat
- 1 cup of tomato juice
- dash of pepper
- 1 cup of water
- 2 T. chopped onion
- 2 green peppers chopped
- 2 cups soy sprouts

Melt fat in heavy frying pan. Add salt, onion, pepper, and meat, cut in  $\frac{1}{4}$  inch strips. Cook over a moderate flame, stir constantly until meat is browned. Pour in tomato juice and simmer. Add chopped peppers and cabbage. Cover and cook over very low flame for 10 minutes. Add cooked mixture of cornstarch and soy sauce with water. Cook uncovered until juice has thickened and mixture is piping hot. Serve at once on Chinese noodles or rice. Serves 6.

In concluding, I would like to quote a sentence from the paper, "Introducing Soybeans," by Jeannette B. McCay, which I think describes the soybean perfectly. "Only a common looking little bean, and yet soys offer the greatest hope for feeding a hungry, war-weary world."

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PHYLLIS AAMODT

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## GRITS AND FLAKES



FROM THE INDUSTRY

Lyman Peck, until recently director of nutrition for McMillen Feed Mills, Ft. Wayne, Ind., opened an office as a feed consultant at 53 W. Jackson Blvd., in Chicago February 15. Mr. Peck's experience includes years of experience in the livestock commission business, Union Stockyards, South Omaha; in charge of the service department, Albert Dickinson Co., Chicago; and as head of the animal husbandry department, Merck & Co., Inc., Rahway, N. J. He has been a member of the Soybean Research Council since it was formed. He states: "Much new information on the nutritional requirements of livestock and poultry is being reported and much more will be forthcoming. Many new sources of vitamins, and the amino acids that make up protein, will be available to feed mixers. It is my purpose to continue to keep in touch with the research in nutrition and management of livestock and poultry in order to assist my clients with their problems."



LYMAN PECK

A third star has been added to the Bauer Bros. Co. Army-Navy "E" flag, which news was contained in a letter dated January 6, 1945, addressed to Charles L. Bauer, president, from Under-Secretary of War Robert Patterson. The letter states in part: "I am pleased to announce that your company has won for the fourth time the Army-Navy production award for outstanding achievement in producing materials essential to the war effort by maintaining the distinguished record which previously brought you distinction. You are once again proving your leadership on the production front. This third white star ad-

ded to the Army-Navy production award flag carries with it the thanks and congratulations of our armed forces."

The "stretching" of proteins is being considered as a generally practicable method of providing new materials for the manufacture of "significantly improved" protein plastics, films and adhesives, reports the *Journal of the American Chemical Society*. Essentially the process described by Senti, Eddy and Nutting of the U. S. Department of Agriculture comprises heating the protein with water and following up with a mechanical treatment such as stretching in cold or hot water or water vapor to extend or "orient" the peptide chains. In this way globular proteins are said to be converted into oriented fibrous proteins with improved tensile strength and other physical properties. Soybean proteins are among those under investigation.

Edward R. Gay, who recently resigned from the assistant vice chairmanship of the War Production Board, resumed his former duties as vice president of the St. Regis Paper Co. on Feb. 5. During his period of government work, Mr. Gray

served as chief of the industrial programs branch, office of civilian supply, and as director of the general commodities division WPB.

The Borden company has acquired the Soybean Products company of Chicago and Ottawa, Kans., Theodore G. Montague, Borden president, announces. The soybean company will become a part of the Borden special products division under the executive direction of C. F. Kieser, Borden vice-president.

C. A. Brandon, formerly director of cooperative dealer advertising for Ralston Purina Co., has joined the creative staff of the Anfenger Advertising Agency, Inc., St. Louis.

The War Food Administration sold 500 sacks of soy grits, located at Decatur, Ill., at \$2.32½ cwt. Jan. 29. The Cereal By-Products Co., Chicago, was the purchaser.

"Industrializing the Soybean," a booklet issued by the Allis-Chalmers Co., Milwaukee, Wis., gives a description of Allis soybean milling and processing equipment.

McMillen Feed Mills, Inc., is the new name of the Old Fort Mills, Inc., of Marion, Ohio.

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## More Soybeans to Europe

A sharp second quarter stepup in military buying and foreign demand for relief foods is expected to produce a somewhat larger movement of soybeans and soybean products this spring and summer.

Officials in War Food Administration, through whom military, lend-lease and foreign government requests for food are cleared, are cautious about putting out specific estimates. However, the increased tempo in movement of supplies to Europe is apparent

from several quarters.

It shows up, for instance, in second quarter allocations of food supplies for civilian, military and other purposes. It was indicated as the *Digest* went to press that the civilian allocation of fats and oils for the second quarter would be trimmed somewhat, while allocations for the military would be increased a little.

It is known that there's a strong demand among the liberated European nations for oil seeds, principally soybeans and flax, and for some cottonseed.

Such countries as France, Belgium, Holland, and Italy want whole soybeans to crush the seed for oil and use the meal for livestock feed.

France is said reliably to be in the market for around 2,660,000 bushels of soybeans, and to have requested beans for early shipment. Belgium is reported to have ordered another 330,000 bushels, making nearly a three million bushel total from the two countries alone.

A few ships recently have been loaded, or soon are to be, for shipment to Belgium. The Dutch also are wanting soybeans.

UNRRA (United Nations Relief and Rehabilitation Administration) is beginning to step up its food procurement, including some soybeans and soy products, for Italy, Czechoslovakia and Poland.

Altogether, there are indications that around four million bushels of soybeans will be taken for overseas shipment as soon as transportation can be arranged.

It's reported reliably that soy flour shipments to Greece have been resumed on neutral boats; that the Dutch are considering purchase of around 50,000 tons of soy flour, though they have not yet made formal request.

The *Digest* had what appeared to be an authentic report early this month that Commodity Credit Corporation, which handles soybean procurement for War Food Administration, would need several million bushels more soybeans than it had in present stocks to meet tentative overseas requirements.

Officials of Commodity Credit's Oil Seeds Division in Washington would neither confirm nor deny the report, saying merely they knew nothing about it. Nor were they willing to give out figures on CCC soybean stocks, though it was indicated these were not large.

Fats and oils rations in the liberated European countries have run low, and the governments have had a hard time maintaining them. Before the war France got considerable quantities of oil from North Africa, and is believed to be taking some from there now. However, shipping is the big supply hurdle for all the European countries.

The new stir of interest in soybeans appears to be part of a bigger foreign food relief picture in which the Army is expected

By PORTER M. HEDGE

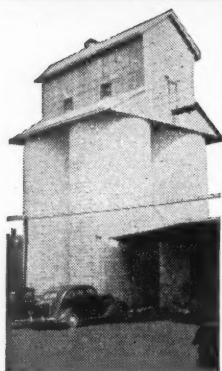
Washington Correspondent for  
The Soybean Digest

to play a big role.

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can temporarily upset the civilian economy at home with the least public flareup.

Thus, there are many straws in the wind to indicate that some of the food supplies taken during the second quarter in Army's name won't be for actual military use, but will be pumped into European relief.

Main bottleneck in the movement of military and relief supplies is the almost desperate shortage of railroad cars in this country. For this reason, effects of the latest Army food buying push are expected to show up immediately in domestic transportation.

All the signs indicate that the tight squeeze on boxcars will continue throughout the spring and summer, instead of easing with improved spring weather.

The extreme pressure on rail transport in this country, plus the latest military successes in Germany, indicate that a renewed drive will be made for release of some of Britain's big food stocks to help feed Europe — at least until the transportation snarl can be unkinked, and replacements made.

### Fertilizer Program

The U. S. Department of Agriculture is attempting for the first time on a national scale to get general agreement on a postwar national fertilizer policy.

End of the war is expected to bring on an "era of fertilizer" use in agriculture, opening new avenues for increased yields. Increased use of fertilizer is expected particularly in the Midwest where until the war fertilizer consumption has been on a comparatively small scale.

As the experts see it, use of commercial fertilizer, more than doubled last year over prewar, will increase to boom proportions.

General aim of a preliminary policy draft prepared by a committee of USDA and War Food Administration officials is to lower costs, quadruple commercial fertilizer use, conserve limited resources of some fertilizer materials, and to put post-war emphasis on soil conservation and maintenance.

USDA estimates that farmers could profitably use nearly four times the prewar volume of commercial fertilizers, and more than seven times the prewar volume of lime. These estimates are based on state surveys conducted mainly by specialists in the land grant colleges.

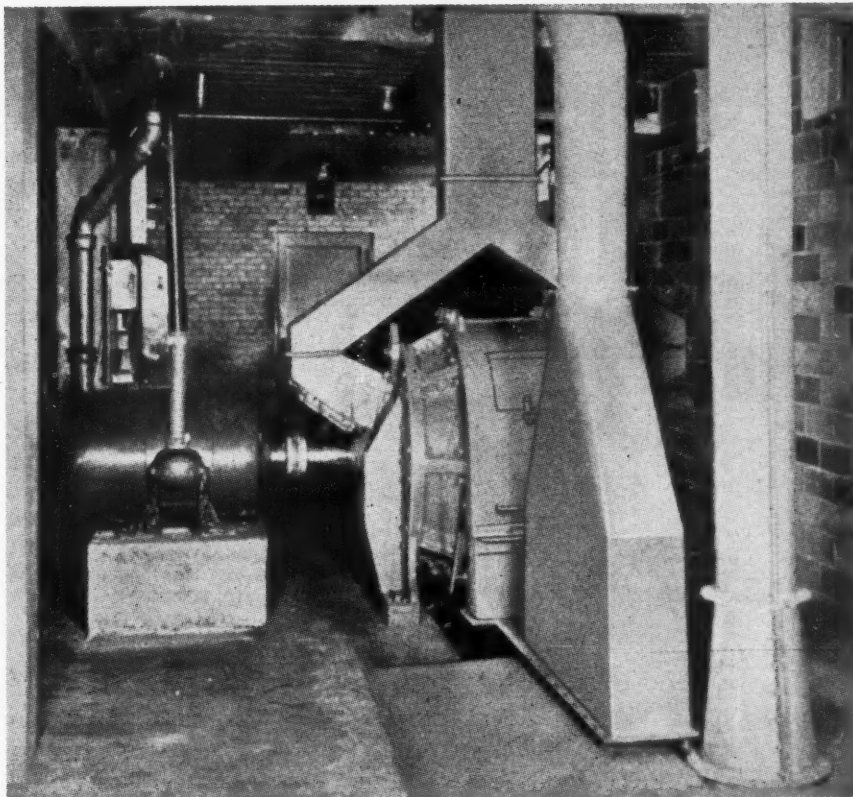
Such an increase in fertilizer use involves expansion of the fertilizer industry, lower costs to the producer, and to achieve the main goal the USDA-WFA committee recommends the following:

That federal and state farm agencies and organizations join in a broad educational campaign to increase use of fertilizer, not only to boost production but to protect the soil.

That additional federal funds be put into programs promoting use of fertilizers and lime, looking eventually toward establishment of such conservation measures as standard farming practices without subsidy.

That a broad program of fertilizer research be launched, including plant-scale

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research which would provide cost yardsticks.

That investigations be made into methods for lowering fertilizer costs, through cheaper transportation, bulk distribution, "active competition" within the industry, etc.

That new sources of liming materials be developed close to the areas of need so as to trim transportation costs.

That government-owned nitrogen plants with 300,000 ton capacity be converted for continued fertilizer production after the war, and maintenance of the other plants in standby condition as a part of the national military establishment.

(The recommendation for conversion of

government-owned plants places emphasis on desirability of the plants being operated under private ownership or lease, if possible, but publicly operated if necessary.)

That the government aid in construction of new phosphate plants to be privately operated, but government run, if the industry fails to take hold. That government-owned sulphuric acid plants be continued in operation to make acid for fertilizer production.

That the government explore for new domestic sources of potash, and that any such discoveries be held by the government.

That until new potash sources are found, "our limited known resources

should be looked upon as a strategic reserve," the American potash industry safeguarded, held in readiness to operate in time of national need, and primary dependence be placed on imports.

Leading industry representatives and farm groups are being sounded out on the long-time goals staked out in the report. Some moves to put them into action are expected during the reconversion and immediate postwar periods.

## Action on Margarine

Action aimed at removing federal and state restrictive legislation on sale of margarine appears to be picking up a little in several parts of the country, judging by reports to the National Association of Margarine Manufacturers here.

Paul T. Truitt, president, says that the margarine industry generally expects to receive fair consideration from most of the more than 40 state legislatures in session this winter.

Noting the recent passage in Kansas of a measure lifting discrimination against margarine made from soybeans, Truitt said he is hopeful that Colorado, considering a similar bill, will take corresponding action.

Kansas has a law levying a tax of 10 cents a pound on colored margarine, but margarine made from certain fats, such as lard, neutral oils, etc., has been exempt from the tax.

In H. 48, the measure recently passed, the Kansas legislature added soybean oil to the list of fats and oils exempt from the tax.

"The action by the Kansas legislature was a signal victory for the soybean industry," Truitt said.

Meantime, in Washington, it's expected that hearings will start soon on H. R. 579, by Representative Rivers of South Carolina. Aim of the Rivers' bill, similar to one introduced in the Senate by Senator Maybank of South Carolina, is to repeal the 10-cent tax on colored margarine and relax other restrictions on sale and distribution of margarine.

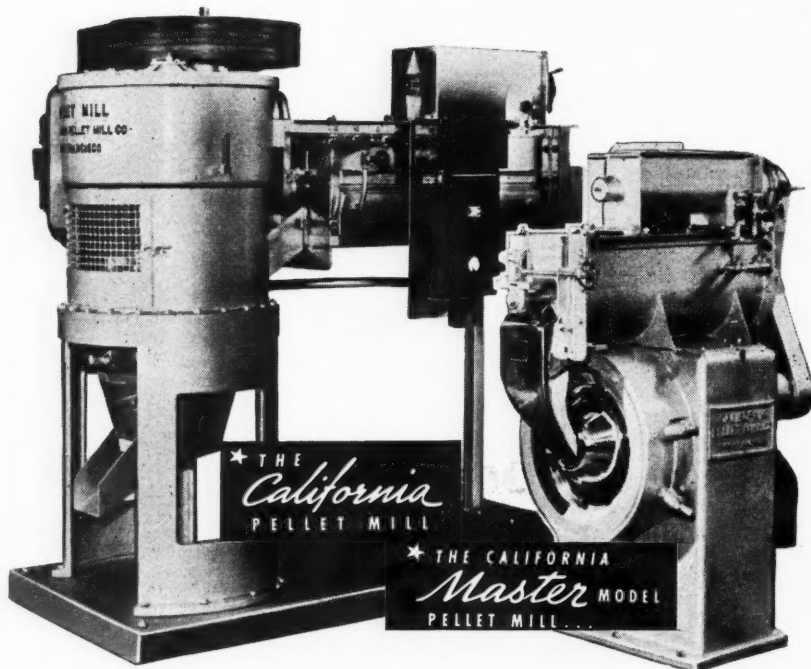
## Pinch in Machinery

WPB's recent cut of about 30 percent in the second quarter steel allocation for farm machinery below the amount War Food Administration figured would be needed for the 1945 crop year removes any remaining doubt that farmers will be pinched for machinery at least another year.

War Food asked for an allocation of 260,000 tons. WPB whittled this down to 236,000 tons, then later granted an allocation of only 175,000 tons, 45,000 tons of which will go into repair and replacement parts. Reason is military requirements of a two-front, two-ocean war have boosted steel demand beyond all earlier expectations and there isn't enough to go around.

To the man with the plow the cut means he will have to put in and tend his crop with old equipment and the few new machines that will be available this spring and summer, and go into the harvesting season with little hope for much new equipment, since harvesting machines will be one of the lines hurt most.

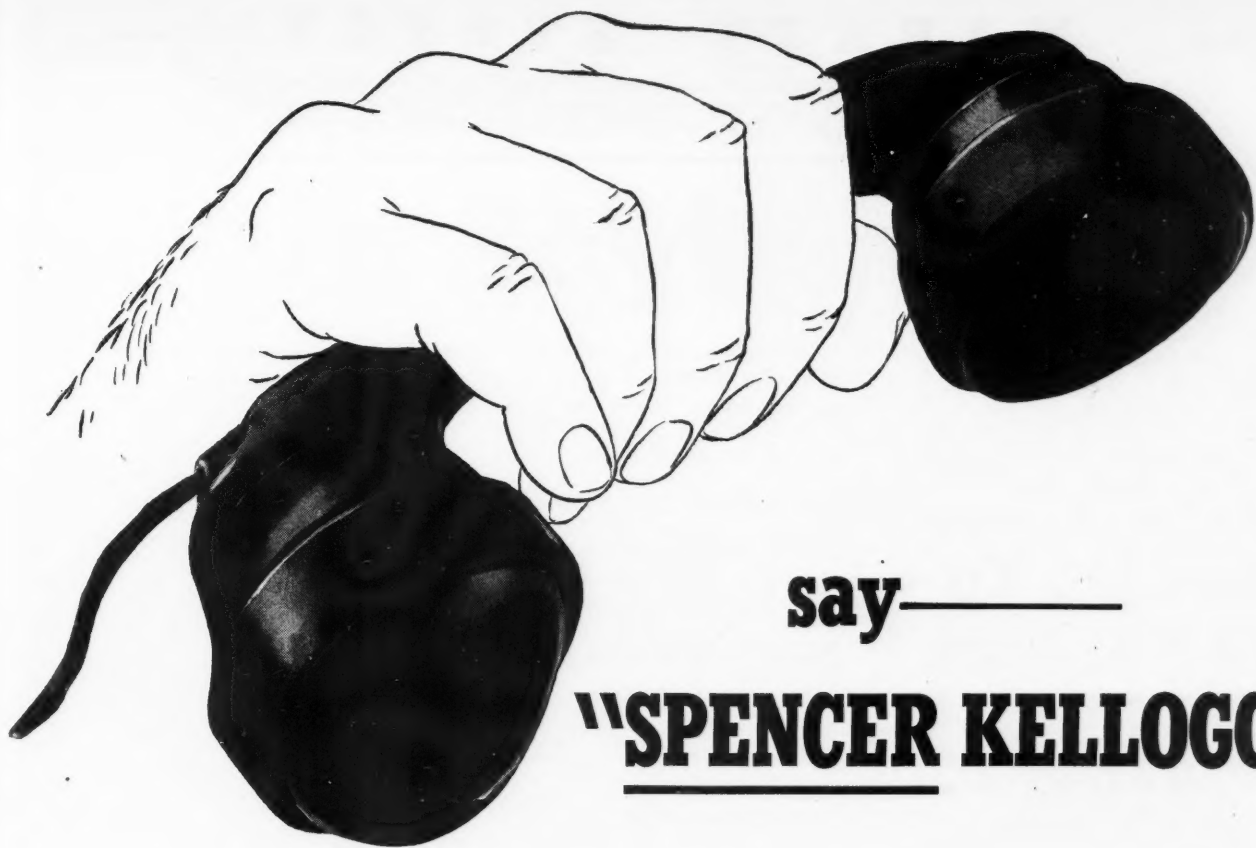
# BUILD NEW MARKETS NOW - - with Pellet Feeds!



★ CALIFORNIA PELLET MILLS build new markets for processors in every type of feed product—with pellets. Pressed or solvent process Soybean, Cottonseed or Linseed Meal can all be profitably converted into pellet feeds with versatile California Pellet Mills. These volume-producing mills can help YOU to build new markets.

**TWO GREAT MILLS FOR EVERY PELLET FEED**

**CALIFORNIA PELLET MILLS**  
CALIFORNIA PELLET MILL COMPANY  
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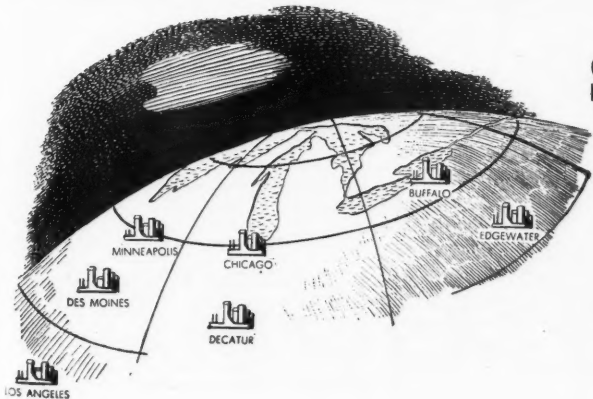
## **"SPENCER KELLOGG"**

**WHEN YOU WANT . . .** Soybean Oil Meal that is uniform and

palatable. *Spencer Kellogg* is not a feed mixer. All research and production facilities are directed toward making a superior protein meal for you to mix.

Convenient shipping points and a reliable source of supply make it easy for you. Protein meal problems can be crossed off your "worry" sheet.

Say *Spencer Kellogg* for Soybean Oil Meal and Linseed Oil Meal that are made for *your* use.



## **SPENCER KELLOGG AND SONS, INC.**

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CHICAGO  
MINNEAPOLIS

DECATUR

DES MOINES  
LOS ANGELES

### *Processing Plants:*

BUFFALO  
EDGEWATER  
LOS ANGELES

DECATUR

CHICAGO  
MINNEAPOLIS  
DES MOINES

# --- MARKET STREET ---

We invite the readers of THE SOYBEAN DIGEST to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here. Rate: 5c per word per issue. Minimum insertion \$1.00.

**WE OFFER** — Earlyana soybean seed. Certified and a special lot for foundation. Osborn Seed Service, Culver, Indiana.

**EDIBLE SOYBEANS.** Giant Green (germination 77) \$4.00 bushel. Freight paid on 2 bushels. George Mitchell, Vineland, N. J.

**FOR SALE** — Used Steel Storage Tanks, 8,000, 10,000, 12,000, 18,000 gal. And other sizes. Stanhope, Wayne, Penna.

**Save Up To  
\$10 Per Acre**  
with



## Uninoculated Soybeans Take Nitrogen From The Land

Uninoculated soybeans may grow on good land by feeding on the land just as does corn. It may cost as much as \$10 per acre to replace the nitrogen consumed by one crop of uninoculated soybeans. Take this nitrogen from the air — save up to \$10 per acre with **KALO INOCULATION**.

## Pays To Inoculate Each Year

Neither prior crops or the presence of nodules, can guarantee proper inoculation and there is no assurance that effective strains of bacteria will survive from year to year. A sure way is to inoculate each crop with Kalo Inoculation — this is good insurance.

## Kalo Inoculation is Highest Quality . . . Costs Less

Kalo inoculants contain superior strains of bacteria . . . carefully selected for their ability to fix nitrogen. Over 500 competitive tests have proven Kalo inoculants to be of top ranking quality. Yet, our price is low — **FROZEN** there by OPA! You can save and profit with Kalo Inoculation.

## UNI-CULTURE

3 Cultures in 1 Can  
for all clovers, alfalfa  
and soybeans

**KALO INOCULANT CO.**  
QUINCY ILLINOIS

**SOY-GRASS COOKIES**—Wheatless, sugarless, alkaline. The food sensation of the age and **LAST WORD IN NUTRITION**. 3 packages postpaid for \$1.00. ViVi-Ta Healthful Foods, 480 E. Main, Rochester, N. Y.

**EDIBLE SOYBEANS** — Bansei variety, high germination. Quantities up to a car load. Samples to seed firms only. W. C. Martin, Orrville, Ohio.

**FOR SALE:** Funks Delicious Edible Soybeans that have been carefully rogued for three years. Test 98.67% pure seed. Raymond E. Roney, Greenfield, Ind.

## Seed Directory

A charge of \$1.00 will be made to subscribers for listing in the April issue. Quantity for sale and variety are included.

### ARKANSAS

Dell — J. M. Stevens, 5,000 bu. uncertified Ral-soy, 500 bu. uncertified Macoupin.

### ILLINOIS

Antioch — Albert Herman, 300 bu. Bansei, 50 bu. Mendota, small quantity Giant Green. Minooka — Dana Cryder, Rt. 2, 400 bu. certified Earlyana, 100 bu. uncertified (edible) Bansei.  
Plainfield — John R. Schmidt, 100 bu. edible Willomi and Hokkaido varieties.  
San Jose — Kelly Seed Co., 16,000 bu. Illini, 1,200 bu. Dunfield, 6,800 bu. Richland, 1,500 bu. Manchou, 2,800 bu. Chief, 800 bu. Patoka, all uncertified.

### INDIANA

Anderson — Roy Scott, Rt. 2, certified Lincoln, sold out.  
Clayton — Paul Jackson, Box 25, 700 bu. certified Dunfield.  
Evansville — Henry L. Hahn, Rt. 2, 1,500 bu. certified Gibson.  
Knightstown — Ray Cannell, Hackleman Farms, 1,500 bu. certified Chief.  
Princeton — Princeton Farms, 4,000 bu. certified Gibson, 2,000 bu. certified Patoka, 1,000 bu. uncertified Macoupin.  
Valparaiso — L. K. Wyckoff, Rt. 3, certified Earlyana, certified Richland, Lincoln sold out.  
Worthington — H. H. Sloan & Sons, Rt. 1, 2,000 bu. certified Chief.

### IOWA

Castana — Fred W. Hawthorn, 1,500 bu. certified blue tag Richland.  
Estherville — A. B. Rosenberger, 300 bu. certified Richland, 100 bu. Earlyana from certified seed, 100 bu. Canadian Mandarin from certified seed, 50 bu. uncertified Habaro.  
Hudson — Strayer Seed Farms, 1,000 bu. uncertified Richland, 1,000 bu. uncertified Bansei edible, 200 bu. uncertified Sac edible, 30 bu. uncertified Mendota edible.  
Laurel — Bert L. Benskin, Box 5, 2,000 bu. certified Lincoln, 4,000 bu. certified Earlyana. Marshalltown — Kenneth R. Lynk, Rt. 1, 2,400 bu. certified Richland.  
New Hartford — Howard B. Good, 500 bu. uncertified Earlyana, 3,000 bu. certified Richland.

### MINNESOTA

Montevideo — John W. Evans, 50 bu. 92% germination certified Kabott, 200 bu. 93% uncertified Habaro, 200 bu. 96% uncertified Pridesoy, 50 bu. uncertified Richland, 20 bu. 88% uncertified edible Bansei.

### MISSOURI

Bethany — Ben Crouch, 30 bu. uncertified Hokkaido, 10 bu. uncertified Aoda, 20 bu. uncertified Kanro.  
Villa Ridge — George Saum, 500 bu. certified Boone.

### OHIO

Covington — Raymond Ebberts, Rt. 2, 1,000 bu. certified Richland.  
Irwin — Farm Management, Inc., 250 bu. certified Bansei, 2,000 bu. uncertified Bansei.  
Marysville — O. M. Scott & Sons Co., 300 bu. uncertified edible Bansei.  
Maumee — W. N. Woods, Monclova Rd., 300 bu. registered Richland, 350 bu. uncertified edible Bansei.  
Orrville — Harry A. Landis, Rt. 2, 300 bu. edible Bansei. No ships less than 300 lbs.  
Worthington — E. S. Halley, 175 bu. uncertified edible Bansei.  
West Alexandria — A. B. Flory, 75 bu. registered Lincoln, 200 bu. uncertified Richland.

### VIRGINIA

Dunnsville — R. P. Smith, 15 bu. Sac.

### WISCONSIN

Madison — Blaney Hybrid Seed Corn Farms, Rt. 3, 2,000 bu. certified Manchou No. 3, 1,000 bu. certified Manchou 606, 500 bu. uncertified Manchou No. 3, 500 bu. uncertified Manchou 606.  
Prairie du Sac — Kindschi Bros., 400 bu. certified Manchou 606.

## PATENTS AND TRADE-MARKS

Patent and protect your inventions. Prompt, expert personal service. Write for full information. Lester L. Sargent, Registered Patent Attorney, P. O. Box 3156, 1115 K Street N. W., Washington, D. C.

# RAT RUIN

Non-poisonous to humans or pets

A red squill product made according to U. S. Dept. of Agriculture formulas.

**TRIAL BOX . . . . \$1.00**  
Enough to Kill 200 Rats postpaid

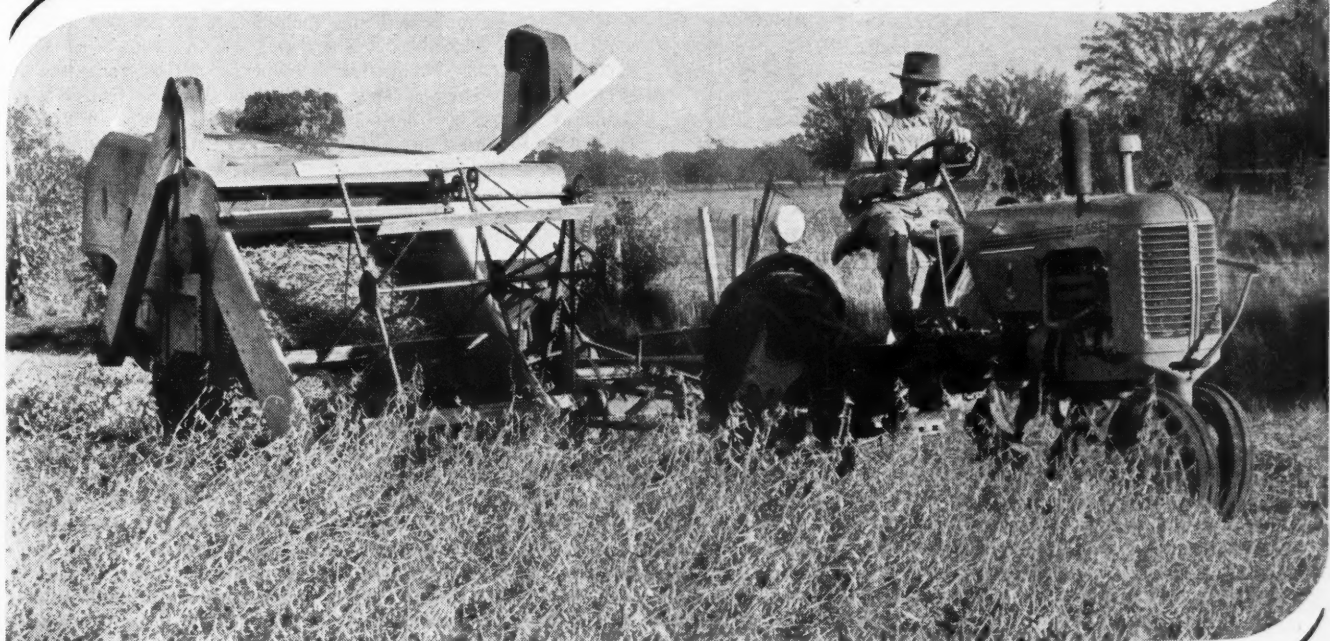
Also packed in bushel, half bushel, and one-fourth bushel baskets for quantity users. Write for prices.

Address Orders and Inquiries to

Dept. FH—The Soybean Digest  
Hudson, Iowa

**NO MUSS — READY TO USE**

# Smooth Sailing in Soybeans



**W**HEN you have to watch the weather every day . . . sometimes every hour . . . for chances to harvest beans while they are fit to store, there's no time to waste with a slow-working machine, or . . . worse yet . . . by stoppages.

Getting the pods across the cutterbar is only the first skirmish in the battle of beans. Case combines are built to keep going and get things done even when green weeds or poorly matured pods make the going tough. The capacity that counts is extra threshing capacity at the cylinder and extra separating capacity on the racks. There's extra capacity, too, in Case Air-Lift cleaning.

This capacity of Case combines to cover more acres per day and capture more beans per acre is not an accident. It comes from over a hundred years' experience, with a hundred crops, in a hundred conditions all over the world. It comes along with Case ENDURANCE, the quality that gives long life with little upkeep to all Case machinery.

Besides the 4½-foot "F" shown above and the similar 6-foot "G," both with rub-bar cylinder, there is the 6-foot spike-tooth "A," the most capable combine built for mixed crops or other difficult threshing conditions. The 9-foot "M" and 12-foot "K" are built with rub-bar cylinder and auger-type header.

# CASE



**YOUR CASE DEALER** can help you choose the type and size of combine which best fits your acreage and your crops; not only beans but grains and seeds. See him for service on your present equipment, and about chances of getting new machines. J. I. Case Co., Racine, Wis.

## OWENSBORO GRAIN CO.

Owensboro, Ky.

*Processors of Soybeans*

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Greendale Soybean Meal

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OIL and MEAL  
SOYBEAN and COTTONSEED

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*Used*  
**BURLAP & COTTON**  
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IN THE BAG BUSINESS  
FOR MORE THAN  
32 YEARS  
WATERPROOF TARPAULINS

## In The MARKETS

### SMALLER SOYBEAN SUPPLIES REFLECT INCREASED DISAPPEARANCE

Soybean supplies on January 1 were 4 percent smaller than a year ago reflecting a 20 percent increase in disappearance for the first quarter of the season, the War Food Administration reports. Supplies for 1944-45 were the largest on record as a result of large stocks and a near record crop. January farm prices were more than double the 10-year average.

Supplies of soybeans at the beginning of the 1944-45 season were the largest on record and amounted to 207,195,000 bushels compared with 205,668,000 bushels available in 1943-44 and 193,155,000 in 1942-43. Production of soybeans in 1944, estimated at 192,863,000 bushels, was only slightly less than the revised estimates of 193,125,000 bushels harvested in 1943. The 10-year (1933-42) average crop was 68,771,000 bushels. An increase of nearly 2 million bushels in stocks October 1, however, more than overcame the slight drop in production.

Disappearance of soybeans in the October-December quarter of the current season amounted to 46,256,000 bushels, an increase of more than 20 percent over that of the same period a year earlier when disappearance amounted to 37,953,000 bushels. This larger disappearance reduced the 1944-45 supply so that stocks on January 1 were smaller than in either of the two previous years. January 1 stocks amounted to 160,939,000 bushels this year compared with 167,715,000 last year and 169,677,000 bushels two years ago. Farm stocks were nearly 15 million bushels less than a year earlier while stocks in country and terminal elevators, mills and crushing plants were about 8 million bushels more. Crushings of soybeans for oil, as reported by the Bureau of the Census, totaled 31,852,000 bushels in the first three months of this season, compared with 30,355,000 in the same months last season. The quantity milled for food dropped to 549,000 bushels October through December, compared with 1,820,000 bushels for this quarter last year.

The quality of the 1944 crop is about as good as the excellent 1943 harvest according to inspectors' reports. Of the inspected receipts, October through January, 86 percent graded No. 2 or better which was the same as for the same period in 1943-44. Only 31 percent of the inspected receipts during the 1942-43 season graded No. 2 or better. Inspected receipts for the first four months of the season, October-January, totaled 55,785 cars compared with 61,555 for the same months of 1943-44.

Urgent demand for soybeans for oil, feed and food has advanced prices to more than double the 10-year average. Prices received by farmers averaged \$2.06 per bushel in January compared with \$1.82 a year ago, \$1.59 two years ago and 98c for the 10-year (1933-42) January average.

The acreage goal for soybeans for beans for 1945 has been placed at 10,757,000 acres which is slightly more than the 10,502,000 acres harvested in 1944 or the 1943 acreage of 10,684,000. With average yields this year's acreage goal would produce



190,000,000 bushels of soybeans. Soybeans produced in 1945 will be supported at a price of \$2.04 per bushel to farmers for No. 2 Green or Yellow or better. This is the same as the support price for the 1944 crop.

• **SOYBEAN STOCKS.** Soybeans stored in all positions, both on and off farms, January 1, 1945 amounted to about 161 million bushels, as reported by the U. S. Department of Agriculture. This total includes farm stocks of 42,593,000 bushels, and 42,948,000 bushels stored in interior mills, elevators, warehouses and other establishments, as estimated by the Crop Reporting Board; 47,429,000 bushels held in processing plants, as enumerated by the Bureau of the Census; 24,446,000 bushels at the 46 terminal markets, reported by War Food Administration; and 3,523,000 bushels reported by Commodity Credit Corporation in their own steel and wooden bins. Stocks in these positions a year earlier totaled about 168 million bushels.

From a supply of about 207 million bushels (stocks of 14 million plus production of 193 million bushels) of soybeans as of October 1, 1944, disappearance to January 1, 1945 is indicated at about 46 million bushels. Of this 31,853,000 bushels were crushed for oil in the final quarter of 1944, according to reports of the Bureau of the Census. In the same period a year earlier, disappearance was about 38 million bushels, of which crushings accounted for 30,354,000 bushels. Making allowance for seed requirements, for usual amounts fed on farms and soybeans used for human consumption, but for no increase in exports, it would appear that the increased rate of processing for oil could be maintained throughout the remainder of the 1944-45 season, but that carry-over stocks on October 1 would thereby be reduced below the relatively high level of the past two seasons.

**STOCKS OF SOYBEANS, JAN. 1, 1945 WITH COMPARISONS**

Position	Jan. 1, 1944	Oct. 1, 1944	Jan. 1, 1945
— THOUSAND BUSHELS —			
On Farms .....	57,333	4,765	42,593
Int. M. E. & Warehouses .....	36,276	1,154	42,948
Processing Plants .....	45,436	5,214	47,429
Terminal Markets .....	23,719	1,323	24,446
Steel & Wooden Bins .....	4,951	1,876	3,523
TOTAL ALL POSITIONS .....	167,715	14,332	160,939

**STOCKS OF SOYBEANS IN MILLS, ELEVATORS, WAREHOUSES AND OTHER ESTABLISHMENTS 1/ JAN. 1, 1945, WITH COMPARISONS**

State	Jan. 1, 1944	Oct. 1, 1944	Jan. 1, 1945
— THOUSAND BUSHELS —			
Ohio .....	3,440	112	3,644
Indiana .....	4,055	41	4,559
Illinois .....	20,080	270	21,022
Michigan .....	135	31	125
Minnesota .....	206	56	334
Iowa .....	6,212	478	11,833
Missouri .....	602	20	601
North Carolina .....	100	4	128
Mississippi .....	115	5	38
Arkansas .....	102	1	41
Ten States .....	35,047	1,018	42,325
Other States .....	1,229	136	623
United States .....	36,276	1,154	42,948

1/ Excludes stocks in processing plants enumerated by the Bureau of the Census and stocks at 46 terminal markets reported by War Food Administration.

• **SOYBEAN STOCKS.** War Food Administration commercial grain stock report.

**U. S. Soybeans in Store and Afloat at Domestic Markets (1,000 bu.)**

	Feb. 6	Feb. 13	Feb. 20	Feb. 27
Atlantic Coast .....	420	414		404
Gulf Coast .....	0			183
Northwestern and Upper Lake .....	718	718	718	718
East Central .....	7,287	7,069	6,945	6,788
Lower Lake .....	7,515	7,241	7,093	6,835
West Central, Southwestern & Western .....	5,711	5,350	5,152	5,038
Pacific Coast .....	0			
Total current week .....	21,651	20,792	20,312	19,966
Total Year Ago .....	21,079	19,822	18,165	17,387

**United States Bonded Grain in Store and Afloat at Canadian Markets**

	74	68	47
Total current week .....	74	68	47
Total Year ago .....	27	19	16

**Total North American Commercial Soybean Stocks**

	21,725	20,863	20,380	20,013
Current week .....	21,725	20,863	20,380	20,013
Year ago .....	21,100	19,841	18,181	17,403

• **JANUARY FOOD PURCHASES.** WFA's report of agricultural

**REPAIR BAGS** *Quickly, Easily*  
With  
**TEHR-GREEZE**  
**FABRIC CEMENT**



**VAL-A COMPANY** 700 W. ROOT STREET  
CHICAGO 9, ILLINOIS

It really sticks! Ideally suited for patching, mending or repairing clothing, tents, awnings, grain bags, sacks, burlap bags, flour mill silks, canvas, leather goods and many other materials. A thousand uses in home, farm and shop.

**EASY TO USE** — Just spread a thin coating with a paddle or knife, press pieces firmly together and allow to dry. Will not peel or tear off.

**WATERPROOF** — Can be washed without loosening the patches. Available in conveniently sized containers. Write for trade prices.

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BROKERS IN VEGETABLE OILS

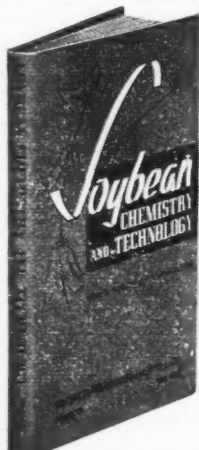
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by KLARE S. MARKLEY

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Senior Chemical Engineer, Northern Regional Research Laboratory; Formerly Senior Chemical Engineer, U. S. Regional Soybean Industrial Products Laboratory.

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41% Protein

4.5% Fat

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A Quality Product backed up by courteous service and fair dealing.

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ILLINOIS

commodities purchased during January for lend-lease, territorial emergency, Red Cross and other purposes.

Deliveries of Food and other agricultural products for shipment to the allies under Lend-Lease during January, 1945, totaled 597.6 million pounds compared with 391 million pounds in December, 1944, and 695 million pounds in January a year ago, the War Food Administration reported.

Commodity (Lbs.)	January
Margarine	4,378,498
Shortening	48,640
Vegetable oils	34,831,318
Soy flour & grits	4,342,700

#### Territorial Emergency Program (Hawaii)

Soybean oil meal	1,239,800
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#### Caribbean Stockpile Program

Soybean oil meal	240,000
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#### Cash Sales

Margarine	830,221
Shortening	745,584
Vegetable oils	3,980
Soya flour	3,500

● **INSPECTIONS.** Inspected receipts of soybeans showed further seasonal decrease in January to a total of 2,613 cars compared with 3,898 cars for the previous month, according to inspectors' reports to the Grain Products Branch of the War Food Administration. January inspections brought the total for the first four months of the season to 55,785 cars compared with 61,555 cars for the same months of 1943-44.

The quality of the soybeans inspected in January was slightly higher than for the preceding month, with 87 percent grading No. 2 or better compared with 84 percent in December.

Inspections of soybeans in January included the equivalent of about 24 cars inspected as truck lot receipts.

● **STANDARD SHORTENING SHIPMENTS.** By members of Institute of Shortening Mfgs., Inc.

Week ending Feb. 3, lbs.	8,270,079
Week ending Feb. 10	8,819,705
Week ending Feb. 17	9,444,466
Week ending Feb. 24	9,048,728
Week ending March 3	8,979,852



## Government Orders

● **VEGETABLE OIL DELIVERIES.** The War Food Administration has amended War Food Order No. 29, continuing through June 30, 1945, the suspension of restrictions on delivery of crude cottonseed, peanut, soybean and corn oils to refiners for refining purposes. The suspension began on October 1, 1943.

Authorizations for delivery of the four crude oils to all users (except refiners) will continue to be obtained from WFA, and there are no changes in provisions of the order which require authorization for use of the four oils, and for delivery and receipt of refined grades.

Allocations will be made in March for April, May and June use and deliveries. Applications should be mailed by March 10 to the Fats and Oils Branch, Office of Marketing Services, War Food Administration, Washington 25, D. C.